

INCH-POUND

MIL-STD-1653B(AS)

30 May 1997

SUPERSEDING

MIL-STD-1653A(AS)

12 March 1980

**DEPARTMENT OF DEFENSE
INTERFACE STANDARD
POWER CABLE ASSEMBLIES**



AMSC N/A

FSC 6150

MIL-STD-1653B(AS)

FOREWORD

1. This standard is approved for use by the Naval Air System Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.
2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to Commander, Naval Air Warfare Center Aircraft Division, Code 4.1.4.2B120-3, Highway 547, Lakehurst, NJ 08733-5100, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

MIL-STD-1653B(AS)

CONTENTS

<u>PARAGRAPH</u>	<u>PAGE</u>
<u>FOREWORD</u>	ii
1. <u>SCOPE</u>	1
1.1 Scope.....	1
2. <u>APPLICABLE DOCUMENTS</u>	1
2.1 General	1
2.2 Government Documents.....	1
2.2.1 Specifications, standards, and handbooks	1
3. <u>DEFINITIONS</u>	2
3.1 Organizational (flightline) equipment.....	2
3.2 Intermediate (shop) equipment	2
3.3 Type I.....	2
4. <u>GENERAL REQUIREMENTS</u>	2
4.1 Electrical power source	2
4.2 Cable assembly construction.....	2
5. <u>DETAILED REQUIREMENTS</u>	3
5.1 Connections	3
5.2 Power cable assemblies	3
6. <u>NOTES</u>	4
6.1 Intended use.....	4
6.2 Cross-reference	4
6.2.1 Replacement Series	4
6.3 Subject term (keyword) listing.....	5
6.4 Changes from previous issue	5
 <u>TABLE</u>	
I Test Equipment Power Cables, Connectors and Connections.....	4
 <u>FIGURE</u>	
1. Power cable (detachable) 60 Hz 1Ø 115 volts.....	6
2. Test equipment receptacle 60 Hz 1Ø 115 volts	6
3. Bench power receptacle Wiring 60 Hz 1Ø 115 volts	6

MIL-STD-1653B(AS)

CONTENTS

<u>FIGURE</u>		<u>PAGE</u>
4.	Power cable (detachable) 400 Hz 1Ø and 3Ø (line to neutral) 115/200V7	
5.	Test equipment receptacle 400 Hz 1Ø 115 volts 7	
6.	Test equipment receptacle 400 Hz 3Ø (line to neutral) 115/200V..... 8	
7.	Bench power receptacle wiring 400 Hz 1Ø to 3Ø (line to neutral) 115/200V..... 8	
8.	Power cable (detachable) 28 volts D.C. 9	
9.	Test equipment receptacle 28 volts D.C. 9	
10.	Bench power receptacle wiring 28 volts D.C. 9	
11.	Power cable (attached) 60 Hz 1Ø 115 volts 10	
12.	Power cable (attached) 400 Hz 1Ø 115 volts 10	
13.	Power cable (attached) 400 Hz 3Ø (line to neutral) 115/200 volt..... 11	
14.	Power cable (attached) 28 volts D.C. 11	
15.	60 Hz to 400 Hz power plug adapter..... 12	

MIL-STD-1653B(AS)

1. SCOPE

1.1 Scope. This standard specifies the configuration requirements of input power cable assemblies for Organizational (flightline) and Intermediate (shop) electronic test equipment, classified as Type I in MIL-T-28800, and rated up to 10 amperes. It also shows the relevant connections for the test equipment and power source receptacles.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, and 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, and 5 of this standard, whether or not they are listed.

2.2 Government Documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the latest issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

FEDERAL SPECIFICATIONS

W-C-596 - Connector, Electrical, Power

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-C-3432 - Cable and Wire, Electrical (Power and Control, Flexible and Extra Flexible, 300 and 600 Volts)
 MIL-C-28777/5 - Cable Assembly, Electronic Test Equipment, (3 wire, 3 prong, 125 volt, molded) Grounding Plug Connector
 MIL-T-28800 - Test Equipment for use with Electrical and Electronic Equipment, General Specification for

DEPARTMENT OF DEFENSE STANDARDS

MS2548 - Cable Assemblies, Electric Power, for Portable Ground Support Equipment
 MS3102 - Connector, Receptacle, Electric, Box Mounting

MIL-STD-1653B(AS)

MS3106	-	Connector, Plug, Electric, Straight
MS3107	-	Connector, Plug, Electric, Quick Disconnect
MS3436	-	Connector, Plug, Electric, Solder Contact, Utility
MS3507	-	Connector, Plug, Electric, Solder Contact, Quick Disconnect, Utility
MS90384	-	Cables, Electric Power, Permanently Wired, for Portable Ground Support Test Equipment

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

3. DEFINITIONS

3.1 Organizational (flightline) equipment. Test equipment used in the vicinity of the aircraft on land or on board ship. It includes test equipment used on the flight line or flight deck, and in the hangar or hangar deck. This class of test equipment is for use in areas where the environmental conditions are uncontrolled.

3.2 Intermediate (shop) equipment. Test equipment used in the shop at land facilities or on board ship where the service area is protected and environmentally controlled for human occupancy. It includes test equipment used in field shops, fixed or mobile.

3.3 Type I. Test equipment designed specifically for military use.

4. GENERAL REQUIREMENTS

4.1 Electrical power source. Equipment not powered from aircraft or system under test shall operate from power sources specified by the acquiring activity. The nominal power sources shall be selected from the following voltages that are readily available to the maintenance technician:

- a. 60 and 400 Hz, single phase, 115V
- b. 400 Hz (only), single phase, 115V
- c. 400 Hz (only), 3 phase wye (line to neutral), 115/200V
- d. DC, 28V

4.2 Cable assembly construction. This standard specifies the type of connectors, cables, color codes and pin connections required for each voltage source. Other items needed to complete the cable assemblies are to be consistent with good construction practices.

MIL-STD-1653B(AS)

5. DETAILED REQUIREMENTS

5.1 Connections.

- a. The cable assembly connections for equipment rated up to 10 amperes shall be as specified in Table I, column 1 or 2 as applicable for the voltage source.
- b. Connections for the equipment receptacles and power source receptacles listed in Table I, columns 3 and 4 are shown for informational purposes.
- c. Connections for other power source requirements or current ratings higher than 10 amperes shall be as specified by the acquiring activity.

5.2 Power cable assemblies.

- a. Detachable power cable assemblies shall be as specified in Table I, column 1 as applicable for the voltage source. They are furnished with equipment having a combination case enclosure with a removable front cover and input power connection on the front panel. The cables shall be stowed in the enclosure cover.
- b. Permanently attached power cable assemblies shall be as specified in Table I, column 2 and shall be furnished with other style enclosures. A strain relief shall be provided.
- c. Equipment operating from multiphase sources (60 and 400 Hz) shall be furnished with a cable assembly as specified in figures 1 or 11 and an adapter as in figure 15.
- d. No branched power cable assemblies shall be furnished.
- e. Power cable assemblies for other power sources or current ratings higher than 10 amperes shall be as specified by the acquiring activity.

MIL-STD-1653B(AS)

TABLE I. Test equipment power cables, connectors and connections

	1	2	3	4
EQUIPMENT POWER REQUIREMENT	DETACHABLE POWER CABLE ASSEMBLY	ATTACHED POWER CABLE ASSEMBLY	EQUIPMENT RECEPTACLE	POWER SOURCE RECEPTACLE
60 and 400 HZ 1 Phase 115V	Figs. 1 & 15	Figs. 11 & 15	Fig. 2	Figs. 3 & 7
60 HZ 1 Phase 115V	Fig. 1	Fig. 11	Fig. 2	Fig. 3
400 HZ 1 Phase 115V	Fig. 4	Fig. 12	Fig. 5	Fig. 7
400 HZ 3 Phase Wye 115/200V	Fig. 4	Fig. 13	Fig. 6	Fig. 7
DC 28V	Fig. 8	Fig. 14	Fig. 9	Fig. 10

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The cable assemblies described by this standard are intended for use with test equipment aboard carriers and on shore.

6.2 Cross-reference. This interface standard replaces MIL-STD-1653A(AS).

6.2.1 Replacement series. For replacement of MS3102, MS3106 and MS3107 connectors, see the applicable MS3400 and MS3450 series documents.

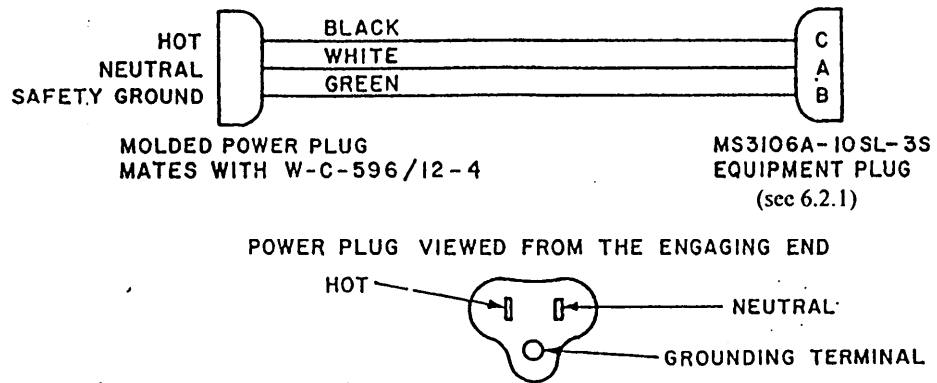
MIL-STD-1653B(AS)

6.3 Subject term (keyword) listing.

connectors
flightline
ground support
intermediate
organizational
plug
receptacles
test equipment

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue. There are no technical changes in the power cable assemblies resulting from the transition from a MILITARY to an INTERFACE STANDARD.

MIL-STD-1653B(AS)



CABLE NO: M28777/5-1 (MIL-C-28777)
 LENGTH: 96 ± 2 INCHES
 POWER CABLE P/N: MS2548-2

FIGURE 1. Power cable (detachable) 60 Hz 1φ 115 volts.

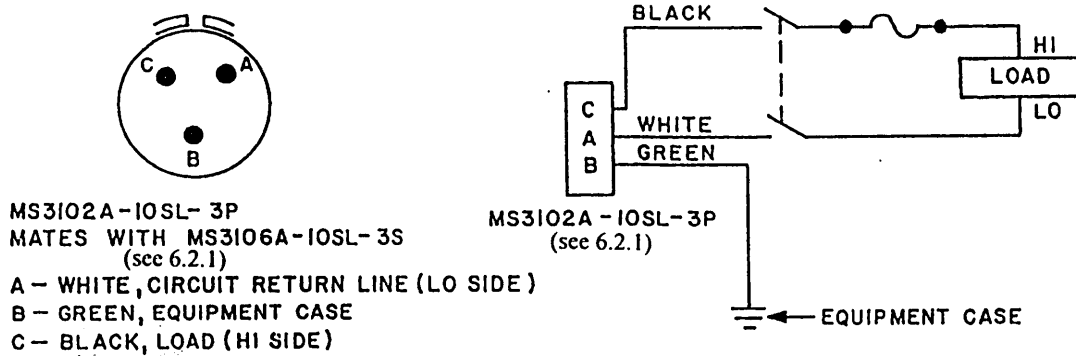


FIGURE 2. Test equipment receptacle 60 Hz 1φ 115 volts.

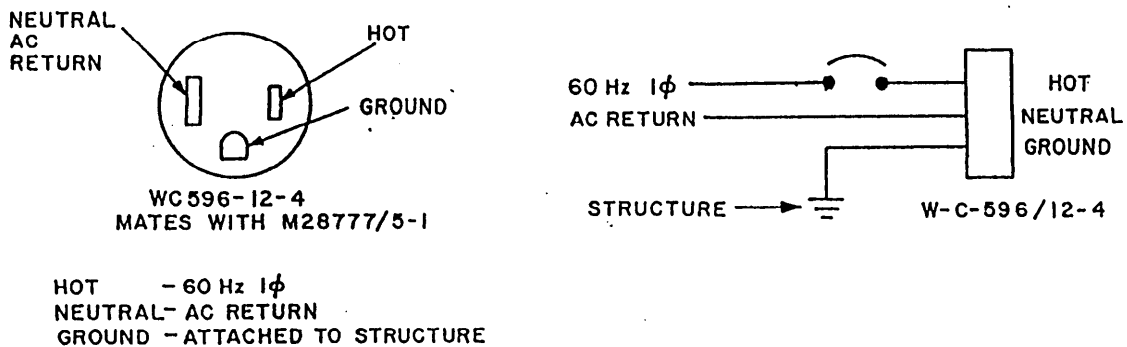


FIGURE 3. Bench power receptacle wiring 60 Hz 1φ 115 volts.

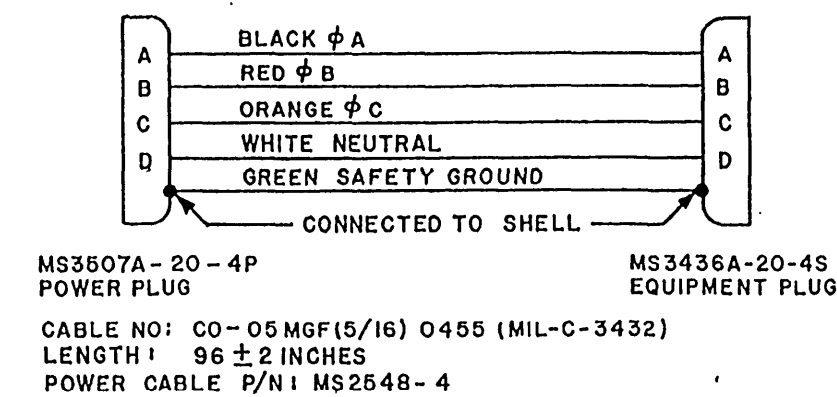


FIGURE 4. Power cable (detachable) 400 Hz 1φ and 3φ (line to neutral) 115/200V.

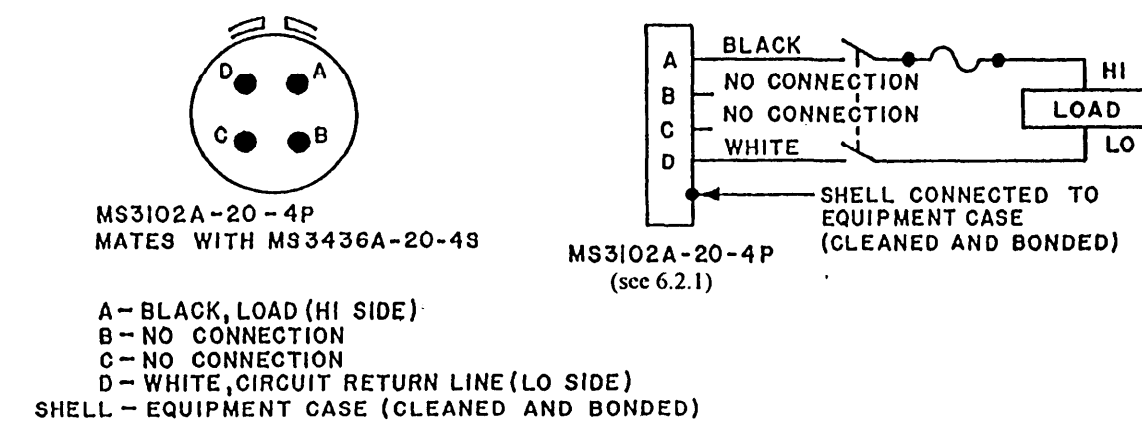


FIGURE 5. Test equipment receptacle 400 Hz 1φ 115 volts.

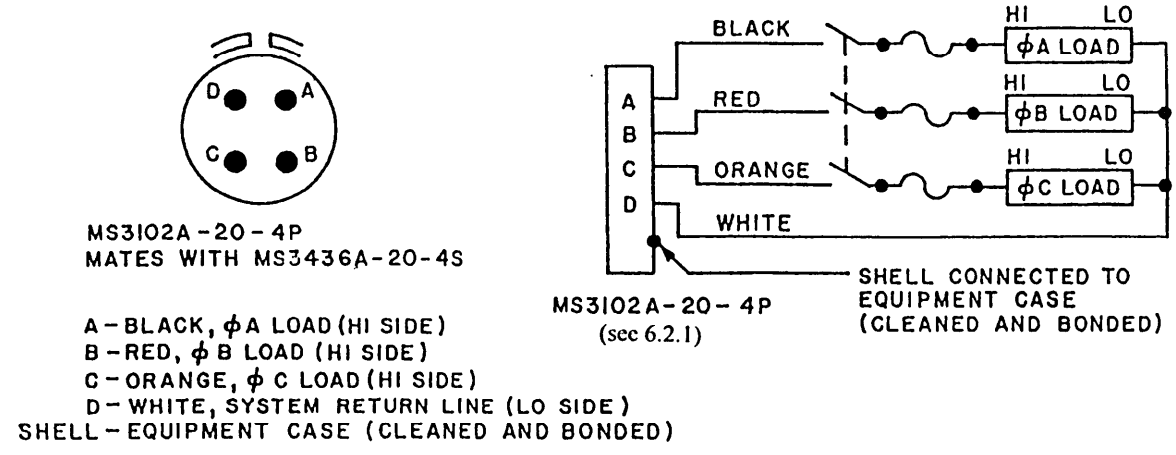


FIGURE 6. Test equipment receptacle 400 Hz 3 ϕ (line to neutral) 115/200V.

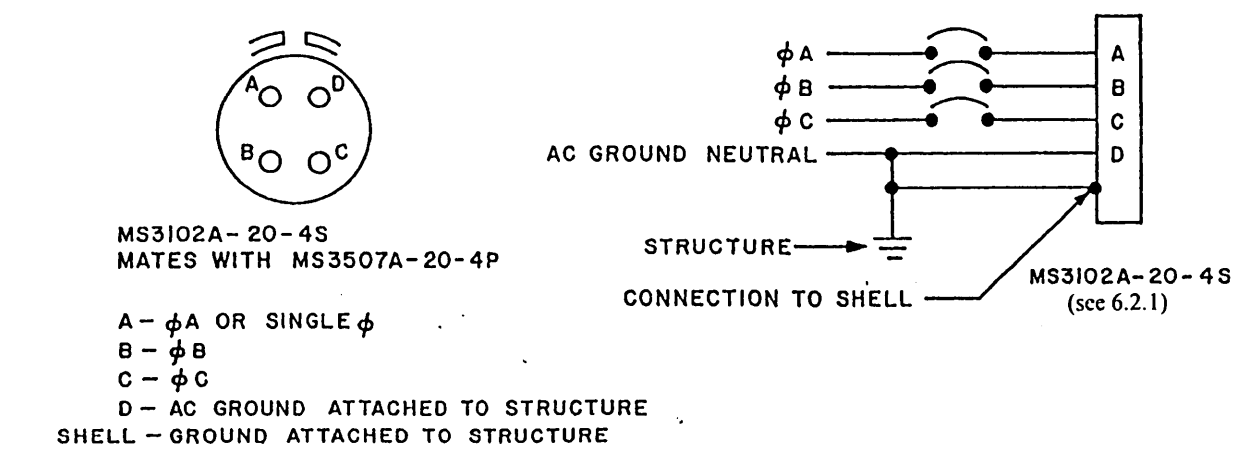


FIGURE 7. Bench power receptacle wiring 400 Hz 1 ϕ and 3 ϕ (line to neutral) 115/200V.

MIL-STD-1653B(AS)

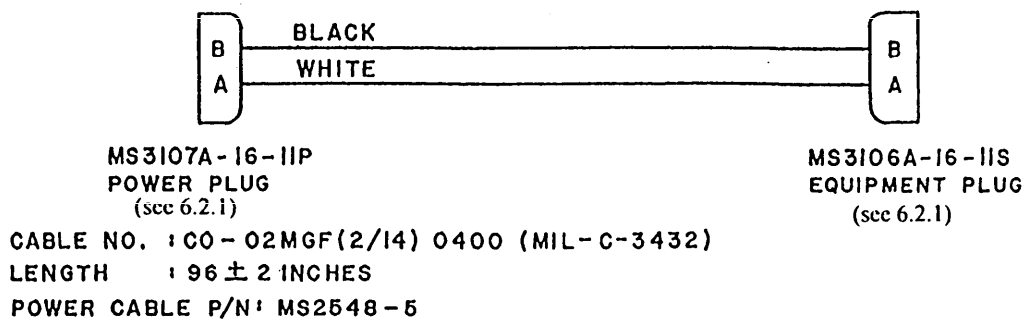


FIGURE 8. Power cable (detachable) 28 volts DC.

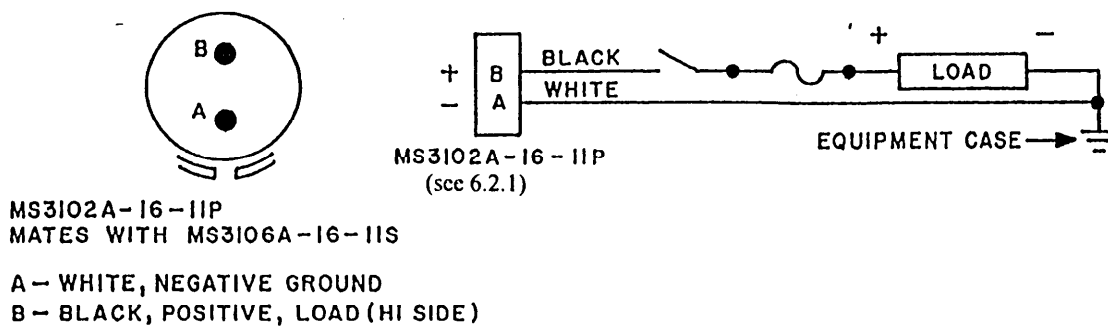


FIGURE 9. Test equipment receptacle 28 volts DC.

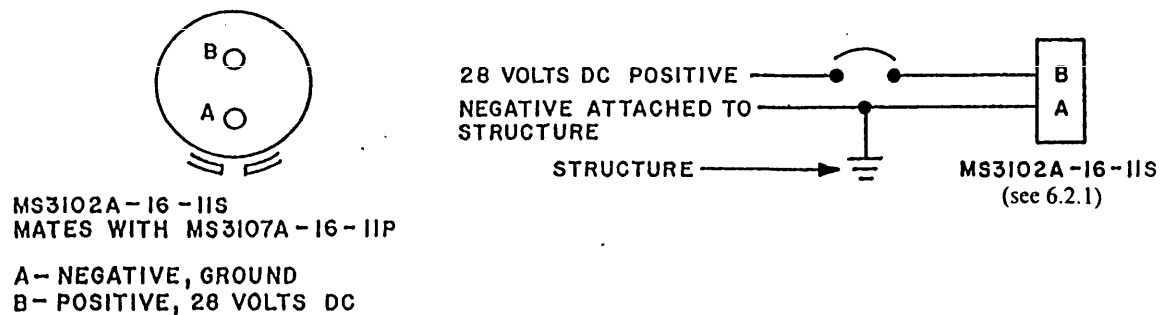
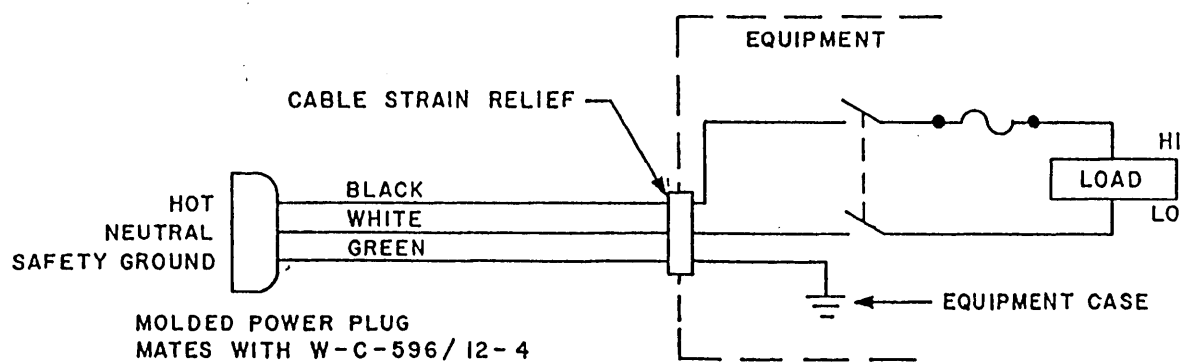
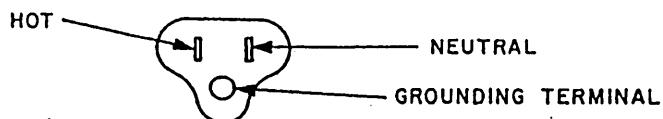


FIGURE 10. Bench power receptacle wiring 28 volts DC.

MIL-STD-1653B(AS)



POWER PLUG VIEWED FROM THE ENGAGING END

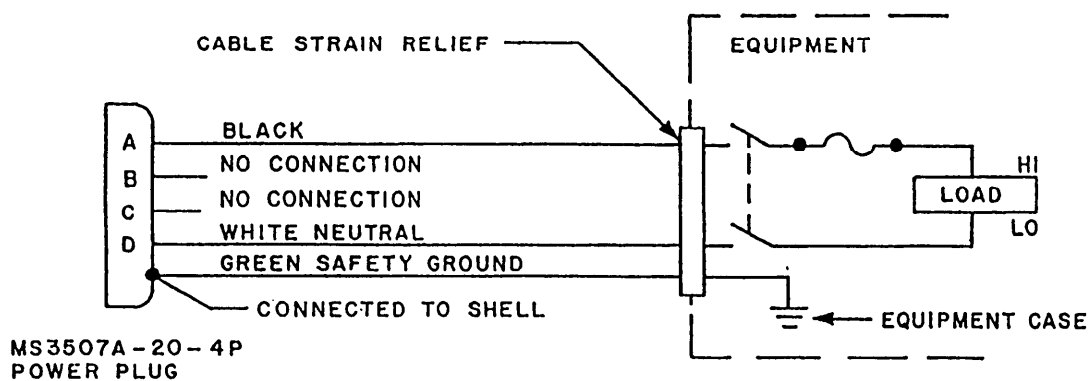


CABLE NO: M28777/5-1 (MIL-C-28777)

LENGTH: 96±2 INCHES, CABLE STRAIN RELIEF SHALL BE PROVIDED

POWER CABLE P/N: M28777/5-1

FIGURE 11. Power cable (attached) 60 Hz 1φ 115 volts.



MS3507A-20-4P
POWER PLUG

CABLE NO: C0-03MGF(3/16)0365 (MIL-C-3432)

LENGTH: 96±2 INCHES, CABLE STRAIN RELIEF SHALL BE PROVIDED

POWER CABLE P/N: MS90384-2

FIGURE 12. Power cable (attached) 400 Hz 1φ 115 volts.

MIL-STD-1653B(AS)

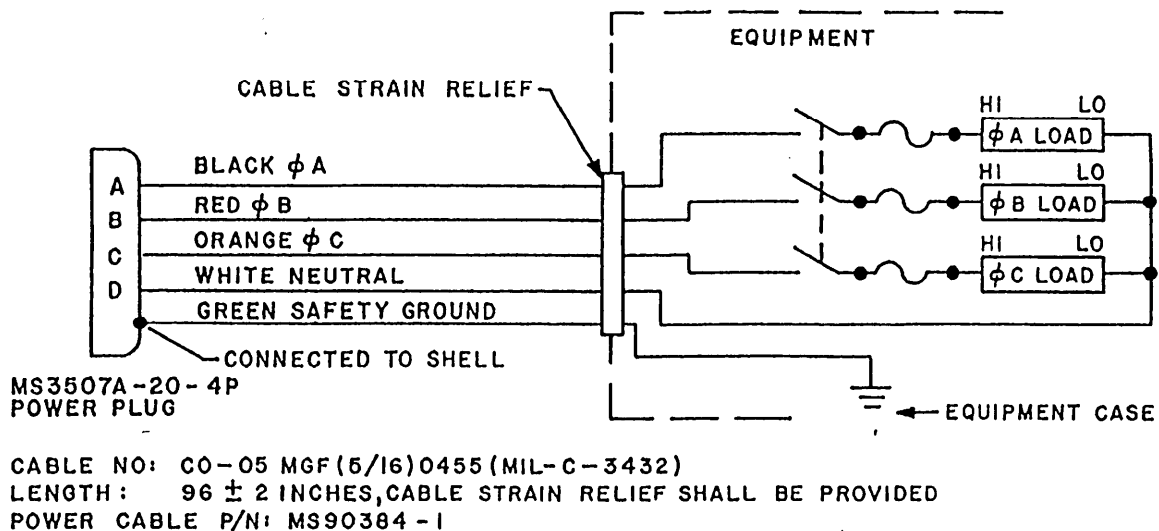


FIGURE 13. Power cable (attached) 400 Hz 3 ϕ (line to neutral) 115/200 volt.

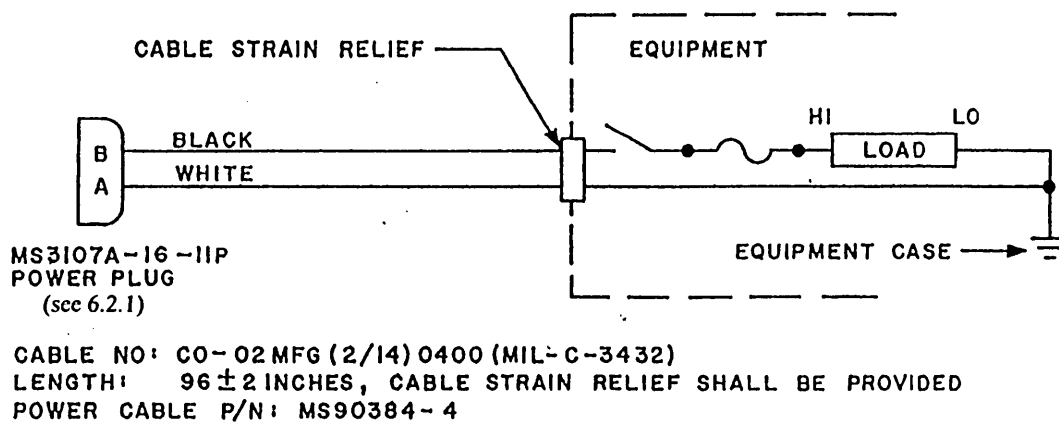


FIGURE 14. Power cable (attached) 28 volts DC.

MIL-STD-1653B(AS)

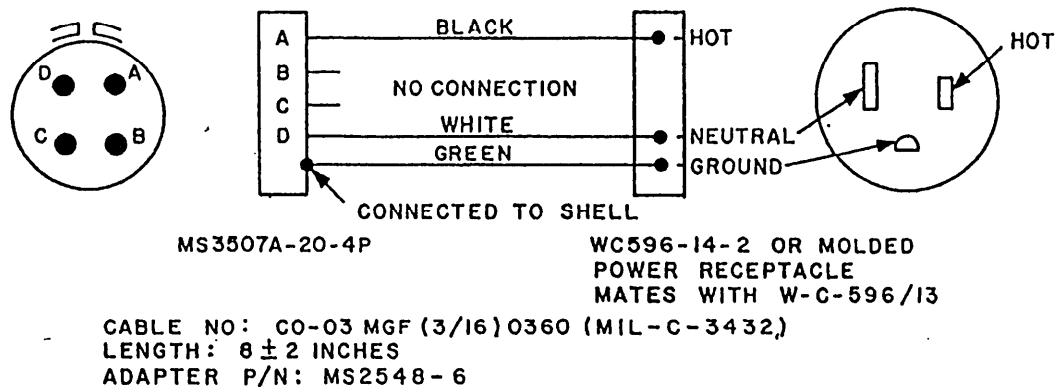


FIGURE 15. 60 Hz to 400 Hz power plug adapter.

CONCLUDING MATERIAL

Custodian:
Navy - AS

Preparing activity:
Navy - AS
(Project 6150-N269)

Review activities:
Navy - EC

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-STD-1653B (AS)

2. DOCUMENT DATE (YYMMDD)
970530

3. DOCUMENT TITLE POWER CABLE ASSEMBLIES

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)
(1) Commercial
(2) AUTOVON
(if applicable)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME

COMMANDER, NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION

b. TELEPHONE (Include Area Code)
(1) Commercial
(908) 323-7488

(2) AUTOVON
624-7488

c. ADDRESS (Include Zip Code)

CODE 414100B120-3
HIGHWAY 547
LAKEHURST, NJ 08733-5100

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
DEFENSE QUALITY AND STANDARDIZATION OFFICE
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22401-3466
Telephone (703) 756-2340 AUTOVON 289-2340