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CONNECTORS, AMPHENOL, 67 Series

GENERAL AND TECHNICAL INFORMATION

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J. T. Dunnett

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AMENDMENT RECORD SHEET

To record the incorporation of an Amendment List in this publication, sign against the appropriate A.L. No. and insert the date of incorporation.

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CONNECTORS, AMPHENOL, 67 SERIES

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LEADING PARTICULARS

Voltage rating

Rating**	Mechanical Spacing (Nominal)	Recommended Working Voltage DC	AC
Sea level (unsealed)*	A	700	500
	B	840	600
Sea level (sealed)†	A	700	500
	B	840	600
70,000 ft. (unsealed)*	A	175	125
	B	210	150
70,000 ft. (sealed)†	A	700	500
	B	840	600

* Refers to connectors with no provision made for sealing front or rear areas.

† Refers to connectors that are potted or pressurized in mounting, having front and rear areas sealed.

** RATING—B rating is for insert 14–5 which has a higher voltage rating.
A rating is for the other inserts.

LEADING PARTICULARS—continued

Wire sizes	...	0·080 to 0·125 in. (size 16 contacts) 0·080 to 0·113 in. (size 20 contacts)
Contact plating	...	Silver
Dielectric material	...	Diallyl phthalate
Standard shells	...	Grey anodized aluminium
Temperature range	...	−55 deg. C. to +125 deg. C.
Bayonet thread lubricant	...	MS4, Ref. No. 33C/9424829, NATO S-736
Current ratings (MIL–C–5015) Size 16 contact	...	10 amp.
Size 20 contact	...	5 amp.
Millivolt drop at max. rated current Size 16 contact	...	14 mV
Size 20 contact	...	21 mV

Introduction

1. The range of Amphenol connectors in the 67 Series covers multi-contact miniature connectors of the quick-disconnect bayonet-lock type. The connectors are available as plugs, cable and panel receptacles and single hole mounting receptacles in five contructions, five shell sizes and 17 insert configurations with up to 48 contacts. Environmentally sealed types have moisture, insulation and environment resistance to U.S. Spec. MIL–C–5015 and are available with unitized back end grommet or with provision for potting. A typical free plug (06C) is shown in Fig. 1 and typical fixed receptacles (00C, 02E, 03E) are shown in Fig. 2.

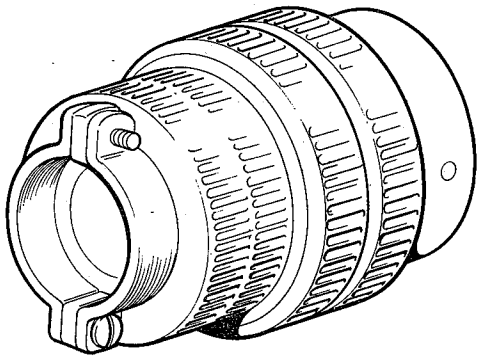


Fig. 1. Typical plug, showing strain relief clamp

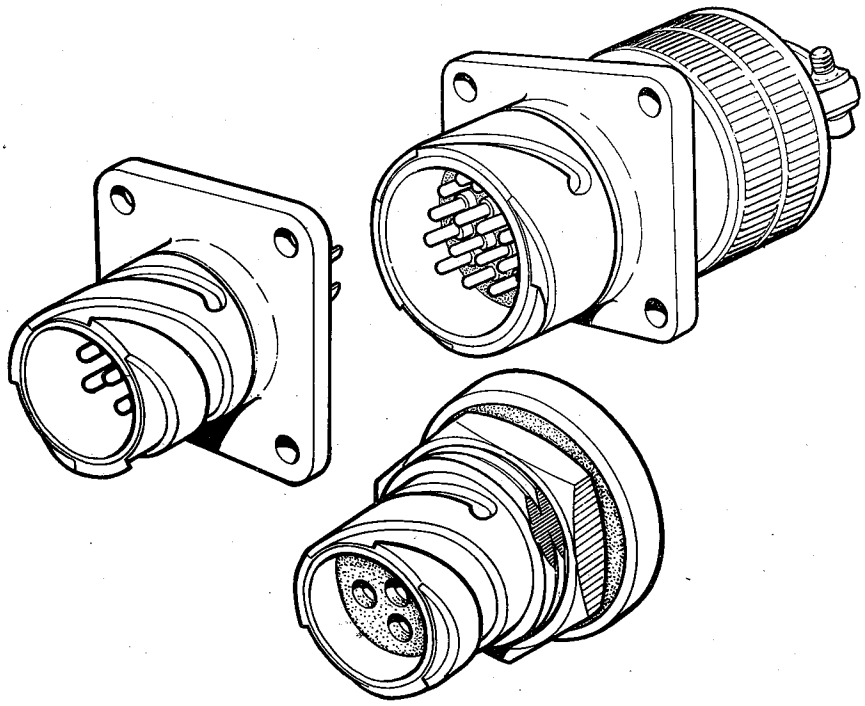


Fig. 2. Typical receptacles

DESCRIPTION

2. The types available within the range (Table 1) make provision for fixed and free units with bayonet slots and pins of stainless steel. These stainless steel slots and pins reduce wear and frictional characteristics and the three pin bayonet coupling minimizes the rocking action of the mated plug and receptacle.

3. A spring-loaded coupling ring provides a positive locking action in the bayonet slot and a compensating force which eliminates permanent set in the resilient face seal.

4. Size 12, 14 and 18 shells are externally threaded on the back end for easier assembly of the compression ring to the shell in the smaller sizes. The external threads are also used for the potting form retaining ring which is provided with connectors for potting.

5. The larger size 20 and 22 shells are internally threaded to reduce the overall diameter of the grommet. If the connector is for potting, the shell retains the potting form and the internal threads provide maximum holding surface for the potting compound.

6. The shells are polarized for easy mating, sizes 12, 14 and 18 have a single polarizing key whilst sizes 20 and 22 have five polarizing keys for precision alignment of the many contacts.

Free units

7. A free plug will mate with the corresponding free or fixed receptacle. Units are provided with either a cable clamp or a grommet for individual wire sealing. In addition fittings are available for potted seals and for jacketed cables. Units may have either pin contacts (exposed) or socket contacts (shrouded) so that the live side of the connections may always be made to shrouded contacts.

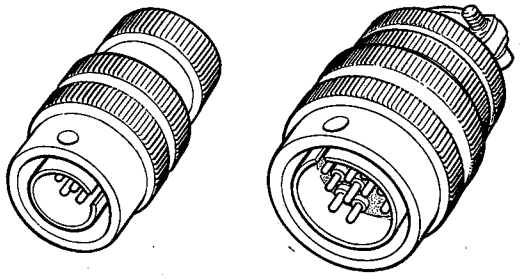


Fig. 3. Typical plugs

Fixed units

8. Fixed receptacles are available with square flange mounting and cable terminations, or with single-hole fixing and exposed solder pockets.

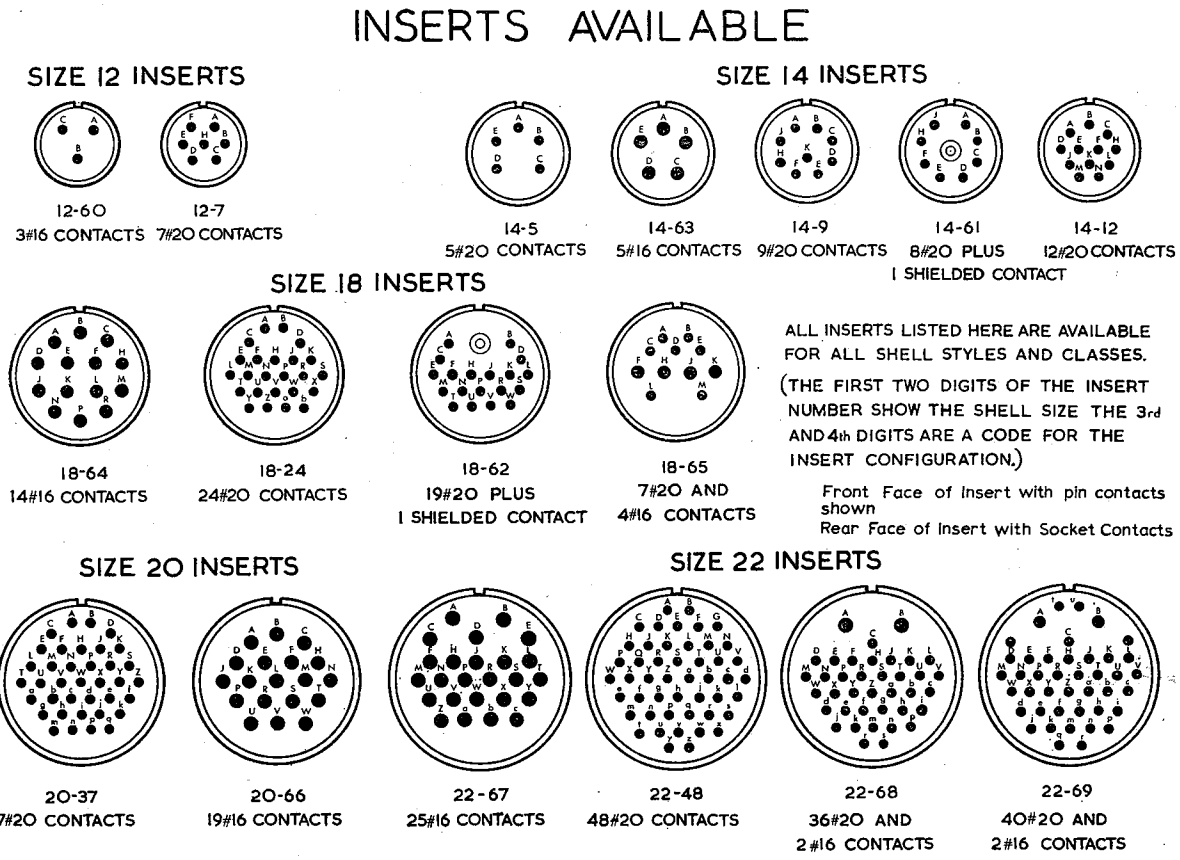


Fig. 4. Contact arrangements

Contacts and insulation

9. The contacts, of gold plated brass, are located in a hard diallyl phthalate insert which has a high impact strength and good dielectric properties. The hard dielectric positively retains the contacts whilst a resilient face seal gasket having individual barriers isolates each contact. Socket contacts are recessed to resist test prod damage.

Contact arrangements

10. The full range of contact arrangements and insert sizes is shown in Fig. 4.

Orientation of moulding

11. To avoid mismating of adjacent connectors, provision has been made for the inserts of the connectors to be assembled in alternative positions as shown in Fig. 5.

Significance of part numbers

12. A typical part number for a 67 series connector is 67–06E12–7 PW (100). This is made up as follows:—

67—Series designation

06—Shell style—alternatives are

- 00—Wall mounting receptacle
- 01—Cable mounting receptacle
- 02—4-hole mount panel receptacle
- 03—Single hole mounting receptacle
- 04—Hermetically sealed round flange receptacle
- 06—Cable plug—straight

E—Mechanical construction—alternatives are

- C—Mechanical clamp (Sealed only when potted)
- E—Environmentally sealed
- H—Hermetically sealed
- J—Sealing clamp for jacketed cable
- P—Enviromentally sealed (Disposable polythene potting form)

12–7—Contact arrangement—(Fig. 4)

P—Type of contacts—P—Pin
S—Socket

W—Insert orientation—(Fig. 5)

(100)—Deviation—alternatives are

- (100)—·0001 in. gold plate over silver
- (104)—Solder pockets filled with 60/40 solder
- (105)—67–04H receptacle modified for staking and soldering on to panel
- (106)—Tinned solder pockets
- (108)—·0001 in. gold over ·0001 in. copper, pre-filled solder pockets, 617 type 'C' connector finish (conductive)
- (112)—EIA date code
- (113)—All aluminium parts have 617 type 'C' finish (conductive)

If the letters 'GB' appear after the series designation, this signifies British design.

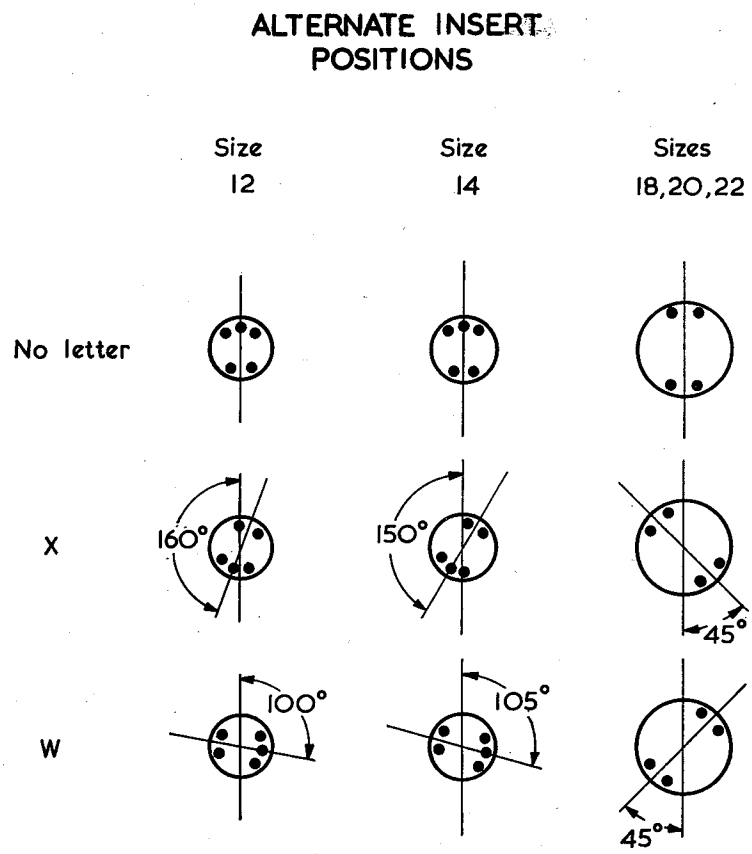


Fig. 5. Alternative insert orientations

SERVICING

13. Servicing is restricted to a physical examination for damage to the contacts or the dielectric. Should cleaning be necessary, due to contamination with oil, grease, etc., any approved cleaning agent may be used, e.g. trichlorethane, Ref. No. 33D/452.

Contact resistance

14. Contact resistance can be obtained by measuring the mV drop across mated contacts with the full rated current flowing. Readings obtained should not exceed the values given in the leading particulars.

Insulation resistance

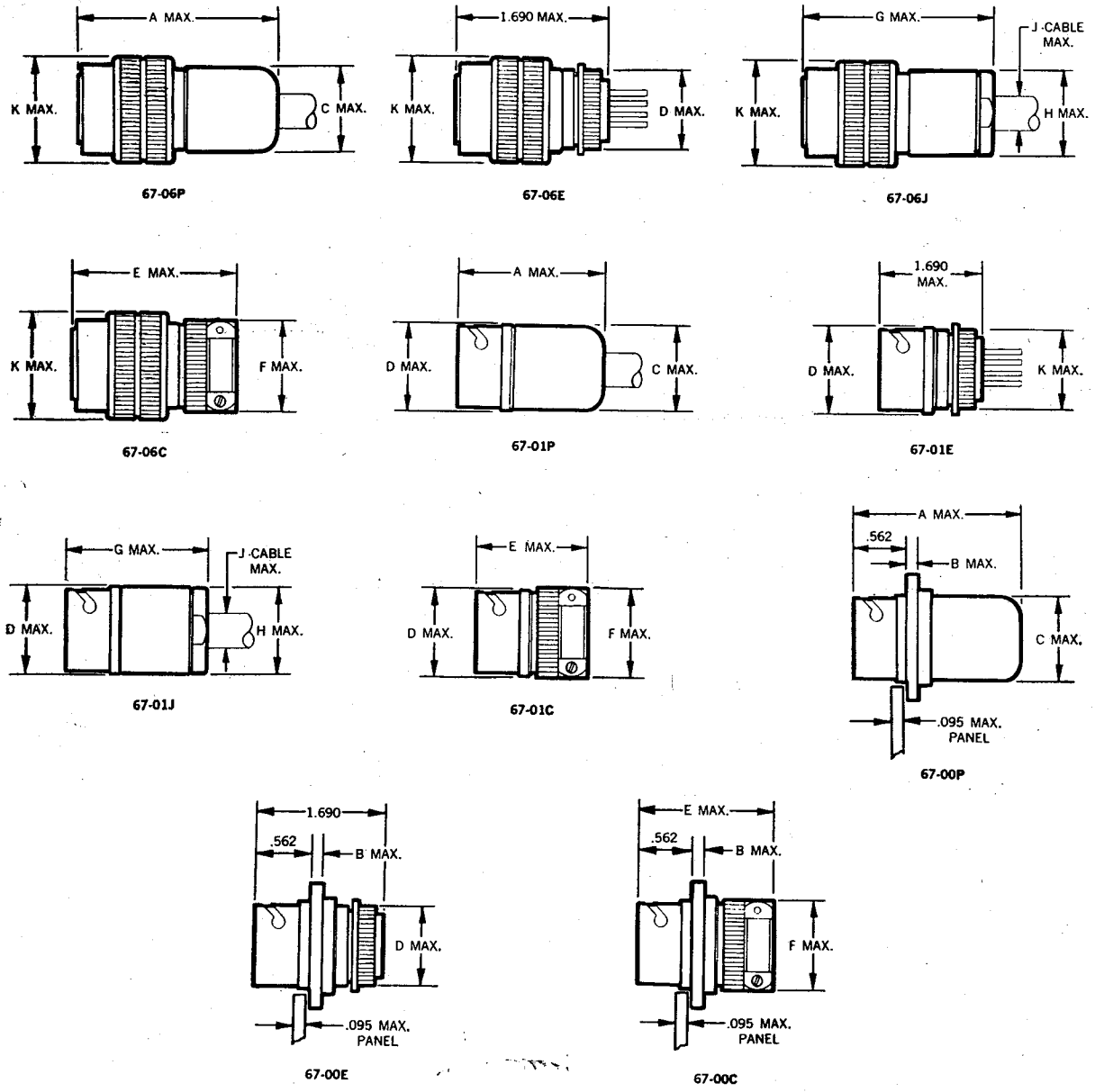
15. Using a 500V insulation resistance tester Type A, Ref. No. 5G/1621 measure the insulation resistance between adjacent contacts. The readings obtained should not be less than 5 megohms.

TABLE 1

Amphenol and Stores Ref. No.

AMPHENOL No.	STORES REF. No.
67–01E14–12S	5935–99–915–0855
67–02E12–7P	947–7770
67–02E14–12S	945–9678
67–02E14–12S(640)	972–3282
67–03E12–7P	972–4027
67–03E14–12P(640)	972–1562
67–03E22–69S	915–0850
67–03E18–24P	972–1563
67–03E22–69SX	915–0853
67–03E22–69P	915–0852
67GB–06B14–12S	970–0768
67GB–06B14–12P	970–0769
67–06C12–7P	947–0863
67–06C12–7S	947–0864
67–06C14–12P	947–0450
67–06C14–12S	947–0451
67–06C22–69PX	915–0854
67–06C22–69SX	915–0851
67–06E12–7S	945–3209
67–06E14–12S	945–3211
67–06E18–24P	946–4023
67–06E18–24S	972–3363
67–06J14–12S	946–4022
67–1467	972–4894

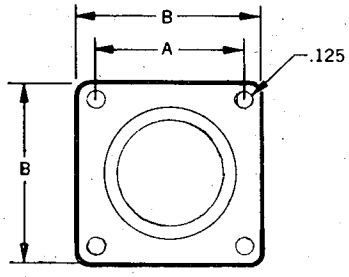
DIMENSIONS (Inches)



Connector Size	A	B	C	D	E	F	G	H	J	K
12	1.687	.062	.795	.895	1.870	.817	1.937	.706	.250	.957
14	1.687	.093	.920	1.000	1.870	.967	1.937	.812	.375	1.082
18	1.687	.093	1.170	1.250	1.870	1.185	1.937	1.062	.656	1.375
20	1.734	.093	1.223	1.375	1.970	1.312	2.312	1.187	.750	1.500
22	1.734	.093	1.352	1.468	1.970	1.440	2.312	1.317	.875	1.625

Fig. 6. Dimensions

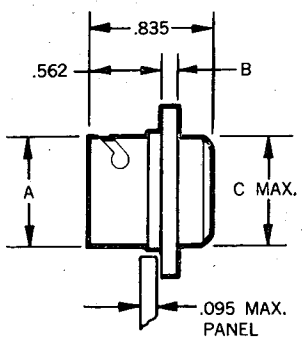
(For all 67 Series square flange connectors)



Connector Size	A	B
12	.812	1.031
14	.906	1.125
18	1.062	1.312
20	1.156	1.437
22	1.250	1.562

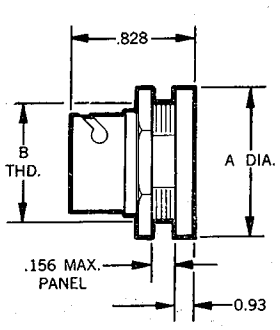
Fig. 7. Mounting dimensions

Connector Size	A	B	C
12	.662	.062	.690
14	.781	.062	.812
18	1.032	.093	1.062
20	1.156	.093	1.187
22	1.281	.093	1.281

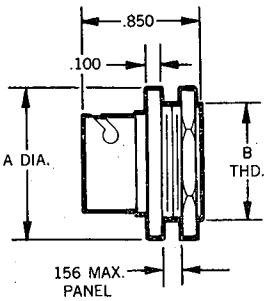


67-02E

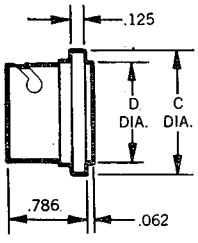
Fig. 8. Mounting dimensions, four hole mounting receptacle



67-03E



67-04H



67-04H (105)

Connector Size	A	B	C	D
12	1.031	.750	.868	.743
14	1.156	.875	.993	.868
18	1.406	1.125	1.203	1.083
20	1.531	1.250	1.363	1.243
22	1.656	1.375	1.493	1.363

Fig. 9. Mounting dimensions, single hole mounting receptacles

Size	Part No.	Dimensions (Inches)			
		A	B	C	D
12	67-1467	.804	.774	.603	3.5
14	67-1464	.938	.750	.594	3.5
18	67-1468	1.172	.774	.603	3.5
20	67-1469	1.296	.774	603	4.0
22	67-1462	1.421	.774	603	4.0

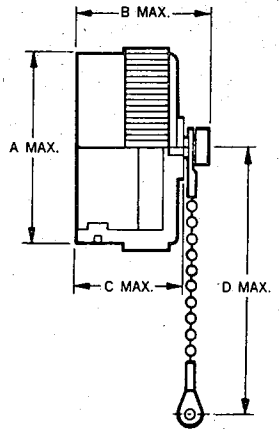


Fig. 10. Cap and chain details

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