INSTALLATION INSTRUCTIONS

Bendix®

LE RACK AND PANEL CONNECTORS

Scintilla Division
SIDNEY, NEW YORK 13838

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Form L-646

SECTION I

DESCRIPTION

1-1. The LE Rack and Panel Connector is a MIL-C-26518 type designed for use in sliding rack applications. This connector series incorporates a resilient neoprene insert and gold plated standard or Coaxial "SE" Crimp Type Contacts. The solid diecast aluminum shells have an "Iridite 14-2" chromate finish.

1-2. The contour of the connector shells makes it impossible to mate the plug and receptacle incorrectly. In this connector the plug uses socket contacts and the receptacle uses pin contacts.

1-3. Receptacles with coaxial arrangements incorporate a metal web as an integral part of the shell. The purpose of this web is to ground all coax contact outer conductors to the shell thus protecting connector from Electro-Magnetic Radiation (EMR). This EMR proof design uses size 8 coaxial contacts (procured separately) with a variety of RG cable types and is available in two insert arrangements. Standard, crimp type, size 20 contacts are available in two insert arrangements offering patterns capable of holding 52 or 102 circuit possibilities.

SECTION II

2-1. The following is typical coded stamping on an LE Rack and Panel Connector: (The numbers 1 thru 10 are included to facilitate code explanation)

L	E	E	6	S	E	-12	/	29	-6	S
1	2	3	4	5	6	7		8	9	10

2-2. Code explanation:

1 - Rack and Panel Connector

2 - Connector Series

3 - Designates grounding feature of coaxial outer contact, when required.

4 - Shell Style

0..... Wall Mounting Receptacle

6..... Straight Plug

5 - Contact termination

S..... Crimp with bushing retention.

6 - Assembly Class

E..... Environmental

7 - Flange width in tenths of an inch approximately. Round off all dimensions to nearest tenth.

8 - Flange length in tenths of an inch approximately. Round off all dimensions to nearest tenth.

9 - Insert Arrangement. This number does not necessarily indicate number

of contacts.

10 - Contact Type. P-Pins, S-Sockets

2-3. Identifying pin or socket locations.

2-4. Connector assemblies incorporating size 20 standard contacts and size 20 contacts with size 16 wire wells, contain inserts and grommets that have contact locations identified with a number and letter combination. Connector assemblies using size 8 coaxial contacts incorporate inserts and grommets that have contact locations identified with numbers only.

2-5. Figure 1 shows contact locations for various connectors. Insert arrangements -2 and -52 are designed for use with standard size 20 contacts, P/N's 10-314980-20P and -20S and size 20/16 WW contacts, P/N's 10-330930-202 and 10-330931-202. Insert arrangements -6 and -13 use size 8 coaxial contacts, 21-33011 and 21-33012 series.

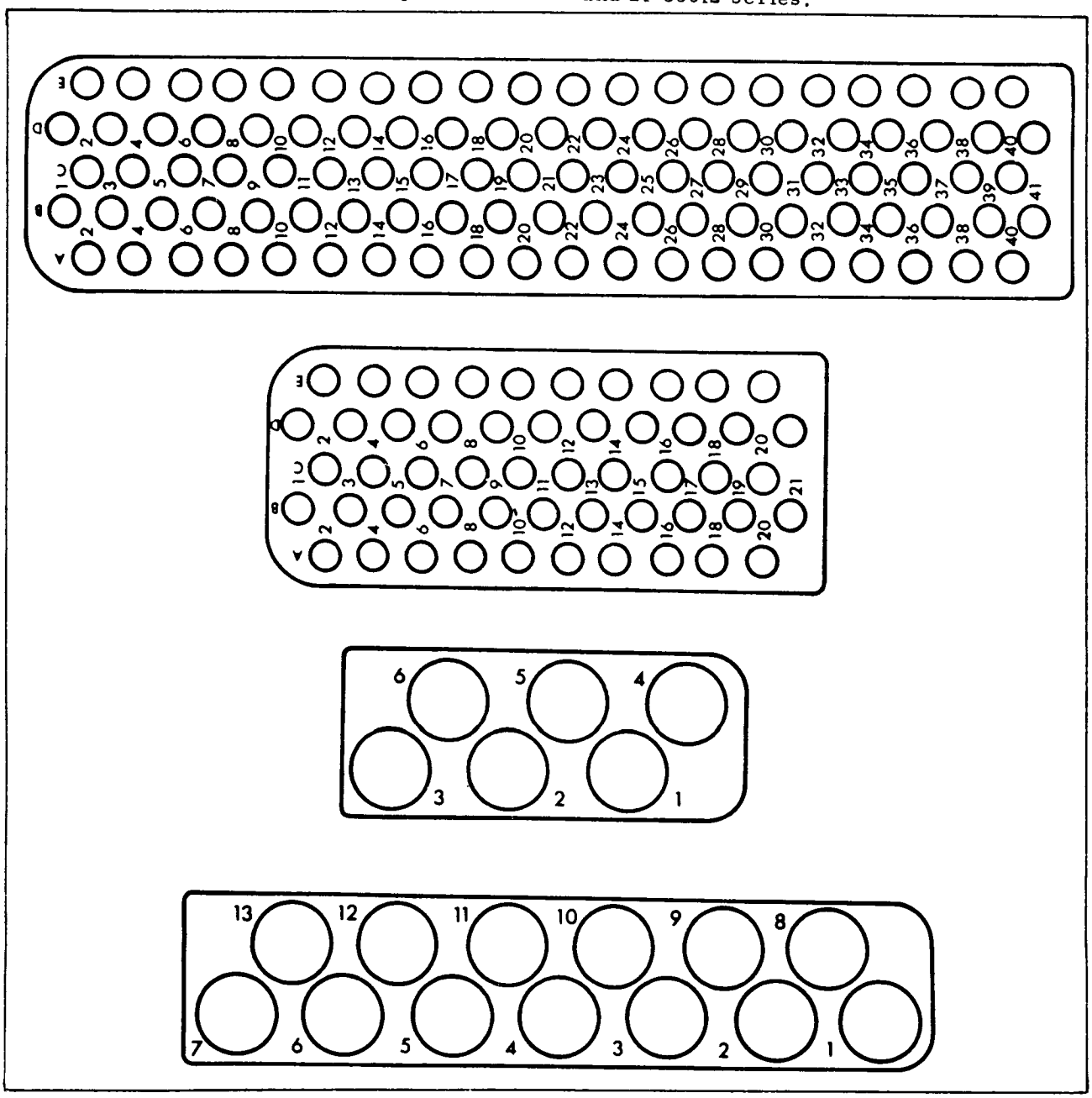

Figure 1 Contact Locations

SECTION III

CONTACT INSTALLATION-SIZE 20 AND SIZE 20 WITH 16 WIRE WELL

3-1. WIRE PREPARATION

3-2. Cut wire to length and strip 3/16 in. of insulation from end for insertion into standard size 20 contacts. Strip 1/4 in. of insulation from end of wires to be inserted into size 20 contact with 16 WW. Hot wire stripping method is recommended. Make certain wire strands are not separated. if separated, reform wire by lightly twisting strands together.

3-3. CRIMPING-HAND OPERATED AND AUTOMATIC FEED CRIMPING TOOLS.

3-4. The MS3191-1 (11-7295) is the basic hand crimping tool. Refer to Table I to select applicable positioner for contact to be crimped. Change crimping tool positioner (figure 2) as follows:

a. Release holding pressure of positioner lock screw and slide latch away from positioner.

b. Slide the positioner release bar, located on the handle, downward and simultaneously remove positioner from tool.

c. Select the required positioner. Move the positioner release bar downward and seat positioner (flat up) into the tool.

d. Release bar, slide latch forward, and tighten lock screw.

TABLE I

TOOLING INFORMATION

CONTACT P/N	TYPE	CRIMPING TOOL	POSITIONER	INSERTION TOOL	REMOVAL TOOL
10-314980-20P	20 Pin	11-7295 (MS3191-1) 11-7790 or 11-7791	MS3191-20A	11-8107-20 or 11-7401-20	11-7880-20
10-314980-20S	20 Socket	11-7295 (MS3191-1) 11-7790 or 11-7791	MS3191-20A	11-8107-20 or 11-7401-20	11-7880-20
10-330930-202	20/16 WW Pin	11-7295 (MS3191-1)	11-7758	11-8107-20 or 11-7401-20	11-7880-20
10-330931-202	20/16 WW Socket	11-7295 (MS3191-1)	11-7758	11-8107-20 or 11-7401-20	11-7880-20

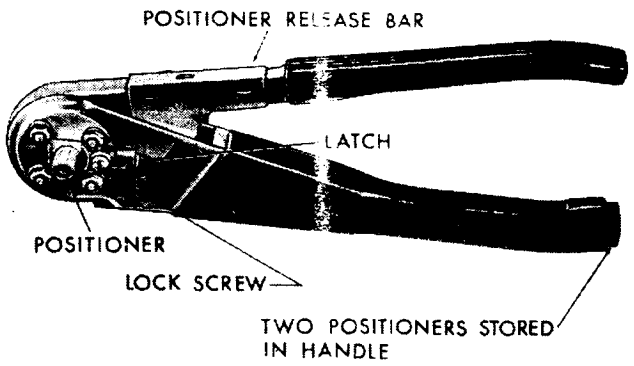

Figure 2. Basic Hand Crimping Tool

3-5. The MS3191-1 (11-7295) Crimping Tool has a built-in safety feature in that the handles cycle in one direction, from open to fully closed and from closed to fully open. With the tool handles fully open, insert and bottom the contact in the positioner. Insert and bottom the wire in the contact wire well as shown in Figure 3. Make sure the contact and wire are inserted into the crimping tool as far as possible. When crimping the size 20 contact, make sure the wire insulation extends into the contact insulation well. Close the tool handles fully. The tool handles will not release until a complete, uniform and reliable crimp has been made.

NOTE

Readjustment and inspection of crimping tools must be done to approved standards and should be attempted only by personnel authorized to do this work.

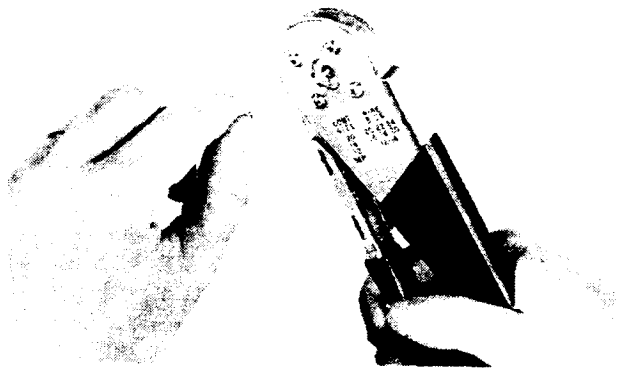

Figure 3. Crimping Contact To Wire

3-6. Make a final visual check to make certain contacts are properly crimped and that ends of wire are visible in inspection hole in contact wire well.

3-7. CRIMPING-11-7790 and 11-7791 CRIMPING TOOLS.

3-8. The Bendix 11-7790 and 11-7791 Automatic Feed, Air Actuated Crimping Tools may be used for crimping size 20 pin and socket contacts. The 11-7790 Tool is portable and the 11-7791 is the bench mounted model. Refer to Form MG-1113 for complete operating instructions.

3-9. CONTACT INSERTION.

3-10. Remove the four compression sleeve retaining screws from rear of connector. Remove sleeve and slide back out of the way. (See figure 4.)

CAUTION

Do not attempt to remove the grommets or inserts as these are an integral part of the connector assembly.

3-11. Select the applicable insertion tool from Table I and proceed as follows:
a. Grip the size 20/16 WW contact as shown in Figure 4 and push straight into insert hole until contact snaps into position. Standard size 20 contacts must be securely gripped at the insulation well as shown in Figure 5. The small shoulder provided in the tips of the size 20 insertion tool must be positioned against back end of insulation well. The size 20/16 WW contacts do not have an insulation support well and are inserted by gripping the wire well with the same tool used for inserting standard size 20 contacts. the small shoulders provided in the tips of the size 20 insertion tool must be positioned against the back end of wire well. A slight increase in resistance can be noticed just before the contact reaches its seated position in the connector assembly. Exercise extreme care during insertion to make certain that contact is kept in alignment with grommet insert hole and not inserted at an angle.

NOTE

Prior to use, visually inspect insertion tools for damage. The tools are made with finely ground tips and should never be used for any purpose other than installing contacts. Tips should be protected by covering with the protective sleeve provided. Damaged tools should be rejected.

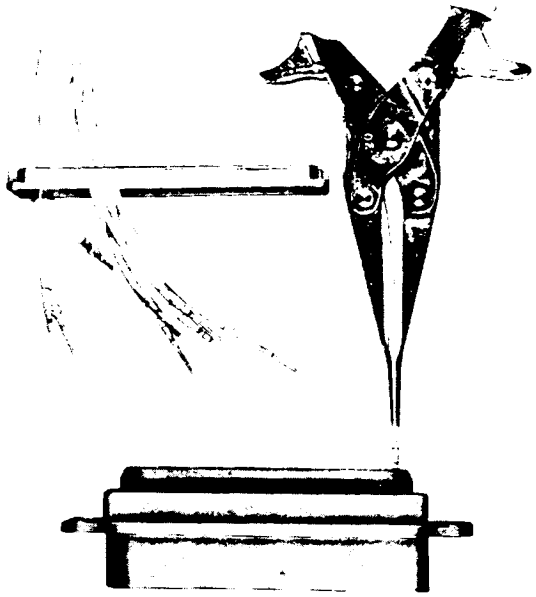

Figure 4. Removing Compression Sleeve and Inserting Size 20/16 WW Contact

Figure 5. Gripping Standard Size 20 Contacts

b. It is recommended that seating of contacts start at the lettered end and work across the opposite end as follows: B1, D1; A2, C2, E2; B3, D3; A4, C4, E4; etc. (Refer to figure 1). Visually check mating end of connector to make sure all contacts are properly inserted to the same depth.

c. A slight pull on wires is a positive check to insure that contact is properly seated. If contact becomes separated from insertion tool during insertion, do not probe to reposition tool on contact. Contact should be removed and re-installed in prescribed manner.

d. Fill unused holes in connector with an uncrimped size 20 contact. Insert a double ended nylon sealing plug in the unused grommet hole, so that one end protrudes out the rear of the grommet.

e. Slide grommet compression sleeve forward and fasten it to rear of connector with four screws.

f. Install the protection cap on mating end of final assembly.

3-12. CONTACT REMOVAL.

3-13. Remove the four compression sleeve retaining screws from rear of connector. Remove sleeve and slide back out of the way. (See figure 6.)

NOTE

The inside surface of the grommet compression sleeve is lubricated by the factory to allow it to slide onto grommet without binding. If for any reason this lubricant has been removed, apply a very thin film of petrolatum (VV-P-236). Do not apply an excessive amount as this may cause contacts to become contaminated.

3-14. Working from front face of connector, insert applicable removal tool from Table I into the insert hole until it fully bottoms. Rotating tool slightly will facilitate insertion. A slight increase in resistance will be noticed just before the tip bottoms. The design of the tool is such that the above action will spread the internal contact retention member and release its hold on the contact. Now push the spring loaded thrust assist knob fully forward. The contact is now disengaged and extending from rear of grommet as shown in figure 6. Grip back of contact and pull straight out of grommet.

CAUTION

Extreme care must be used to maintain true axial alignment of removal tool with contact in order to prevent bending of contact or damage to internal components of connector. The thrust assist knob must be pushed completely to the stop in order to obtain full contact release. The removal tools should be protected from damage when not in use by covering tips with sleeve provided.

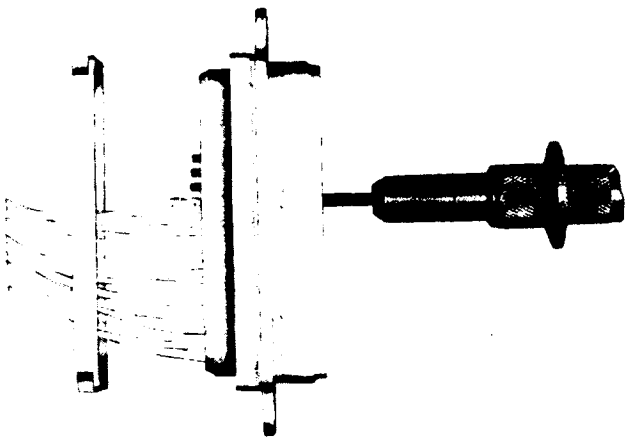

Figure 6. Removing Contacts

SECTION IV

CONTACT INSTALLATION-COAXIAL CONTACTS

4-1. Assembly of Coax Contacts to Coaxial Cable.

4-2. When assembling the coax contacts to the recommended cable listed in Table II, refer to Form L-613 for the recommended assembly instructions.

4-3. CONTACT INSERTION

4-4. Insert contacts and sealing plugs as follows:

a. Remove the four retaining screws from the grommet compression sleeve on the rear of the plug or receptacle. Slide the sleeve back on the wire bundle far enough to facilitate contact insertion.

b. Insert contact into connector from rear (grommet) end using the applicable 11-8660 or 11-8369 channel type Insertion Tool from Table II. (See figure 5.) Use caution during insertion to maintain alignment of contact with the grommet and insert hole. Do not insert contact at an angle. Some increase of resistance will be noted prior to final positioning of contact into the retaining bushing.

c. A special metallic sealing plug 10-290935-8 must be installed in all unused grommet holes of any connector where all available circuits are not being used. The special sealing plug is inserted to prevent moisture and other contamination from entering connector through unused grommet holes. The sealing plug may be installed by hand without the aid of an insertion tool. Start the largest diameter end of the sealing plug into the unused hole of the grommet. Apply pressure (by hand) to the rear of the plug until it moves forward in the hole far enough to be locked in position by the metallic contact retaining bushing.

d. Slide grommet compression sleeve forward on wire bundle and fasten to rear of connector with the four retaining screws.

4-5. CONTACT REMOVAL

TABLE II

Part No.	Size	Type	Cable	Crimping Tool Outer Barrel	Insertion Tool	Removal Tool
21-33012-21 Pin	8	Gasket Seal	RG-55A/u RG-142A/u	T&B WT208 or WT408	11-8369-5	11-7880-8
21-33011-21 Socket			RG-223/u		11-8660-5	
21-33012-22 Pin 21-33011-22 Socket	8	Gasket Seal	RG-58/u RG-141/u	T&B WT203 or WT403	11-8369-4 11-8660-4	11-7880-8
21-33012-23 Pin 21-33011-23 Socket	8	Gasket Seal	RG-122/u	T&B WT203 or WT403	11-8369-4 11-8660-4	11-7880-8
21-33012-24 Pin 21-33011-24 Socket	8	Gasket Seal	RG-180/u RG-195/u	T&B WT203 or WT403	11-8369-4 11-8660-4	11-7880-8
21-33012-25 Pin	8	Impedance Matched	RG-55A/u RG-142A/u	T&B WT208 or WT408	11-8369-5	11-7880-8
21-33011-25 Socket			RG-223/u		11-8660-5	
21-33012-26 Pin 21-33011-26 Socket	8	Impedance Matched	RG-58/u RG-141/u	T&B WT203 or WT403	11-8369-4 11-8660-4	11-7880-8
21-33012-27 Pin 21-33011-27 Socket	8	Impedance Matched	RG-122/u	T&B WT203 or WT403	11-8369-4 11-8660-4	11-7880-8

4-6. Remove contacts and sealing plugs as follows:

a. Remove the four retaining screws from grommet compression sleeve on rear of plug or receptacle. Slide sleeve back on cable far enough to facilitate contact removal.

b. Working from the front face (mating end) of connector, insert the 11-7880-8 Contact Removal Tool over the contact and into the insert hole. (See figure 6.) Continue to apply pressure to the tool handle until the outer tip engages and opens the metallic contact retaining bushing. A slight rotation of the tool during the removal operation will help to open the contact retaining bushing.

c. Disengage the contact by pushing the spring loaded center plunger of the tool fully forward. Remove the contact from connector by gripping the rear of contact, extending from back of grommet, and pulling straight out of grommet. Do not pull on cable.

d. The 10-290935-8 sealing plug may be removed using the same procedure and removal tool as used for removing coaxial contacts.

CAUTION

Extreme care must be used to maintain true axial alignment of removal tool with contact in order to prevent bending of contact or damage to internal components of connector. The thrust assist knob must be pushed completely to the stop in order to obtain full contact release. The removal tools should be protected from damage when not in use by covering tips with the sleeve provided.

SECTION V

MOUNTING DIMENSIONS AND ACCESSORIES

5-1. When mounting the LE Rack and Panel series connector a cutout must be made in the mounting panel. Refer to figure 7 and Table III to determine cutout dimensions for the various connectors.

5-2. A special shielded mounting gasket is available for use when mounting connectors where an EMR proof design is desired. See Table IV for applicable gasket.

5-3. A special spring mounting assembly, Bendix P/N 10-313721 (MS 24695-1, is available to provide a floating mount. (See figure 8.)

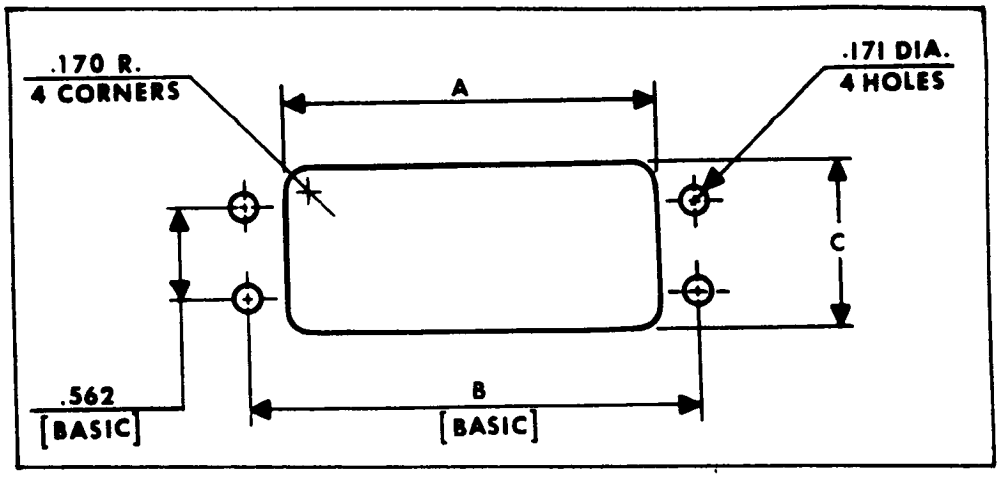

Figure 7. Dimensions of Cutout in Panel

TABLE III

CONNECTOR ASSY. NO.	A	B ± .005	C ± .005
LE6SE-12129-6 S or P LEEOSE-12/29-6 S or P LE6SE-12/29-52 S or P LEOSE-12/29-52 Sor P	1.970	2.445	1.015
LE6SE-12/43-13 S or P LEEOSE-12/43-13 S or P LE6SE-12/43-2 S or P LEOSE-12/43-2 S or P	3.395	3.875	1.015

TABLE IV

GASKET P/N	USE WITH CONNECTOR
10-290931-6	LE6SE-12/29-6 S or P LEEOSE-12/29-6 S or P
10-290931-13	LE6SE-12/43-13 S or P LEEOSE-12/43-13 S or P

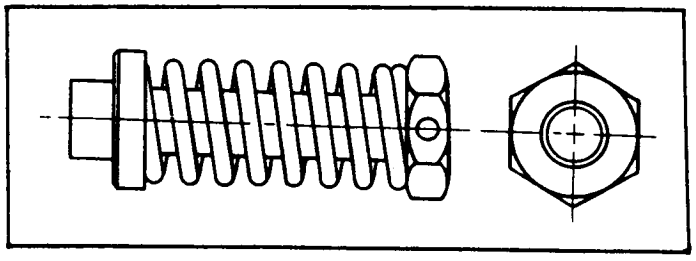

Figure 8. Spring Mounting Assembly