IB IB INSULATION, INC.

CONTROL NO
0190

PROCEDURE FOR:	PROCEDURE NUMBER:
INSTALLATION OF INSULCO/HEMYC CABLE TRAY PROTECTION SYSTEM - STRAIGHT SECTIONS	8400.101

PROCEDURE ISSUE SUMMARY

ISSUE/DATE	PREPARER	APPROVED	COMMENTS
A DRAFT 09/27/82	R.L. Meadows	K.R. Harris R.J. Block	Issue for Review & Comment
B ISSUE 11/29/82	R.L. Meadows	K.R. Harris R.J. Block	Add Insulco Foreword; Revise 1.0 to define testing; Add ANI reference to 3.2; Revise 5.1, 5.2, 5.3, 5.4, and 6.3.2; Revise 2.0 also.

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INSULCO INCORPORATED

November 1, 1982

FOREWORD

This Procedure has been developed by B&B Insulation, Inc. an affiliate company of INSULCO, INC. and is intended for use in the installation of the HEMYC CABLE TRAY PROTECTION SYSTEM into nuclear facilities.

This Procedure may be utilized by an affiliate company of INSULCO, INC. or by any organization granted written authorization by INSULCO, INC. Refer to Section 5.4 within this Procedure for certification of the installed system requirements.

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B

INSTALLATION PROCEDURE FOR INSULCO/HEMYC CABLE TRAY PROTECTION SYSTEM STRAIGHT SECTIONS

ISSUE DESIGNATION IN THIS COLUMN INDICATES CURRENT CHANGE

B 1.0 PURPOSE

The purpose of This Procedure is to assure that the installation of the INSULCO/HEMYC Cable Tray Protection System is consistent with system as tested on the various qualification tests. The Fire Qualification Test, referenced as B&B CTP-1026, consisted of a One (1) Hour Fire Exposure, per ASTM E-119 criteria, including hose stream test in accordance with the AMERICAN NUCLEAR INSURERS Information Bulletin No. 5(79) entitled, *"ANI/MAERP STANDARD FIRE ENDURANCE TEST METHOD TO QUALIFY A PROTECTIVE ENVELOPE FOR CLASS IE ELECTRICAL CIRCUITS"*.

B 2.0 SCOPE

This Procedure provides the methods and guidelines to be utilized for the installation of INSULCO/HEMYC Cable Tray Protection systems.

3.0 REFERENCES

3.1 10CFR50, Appendix R

B 3.2 ANI Bulletin No. 5(79)

3.3 HEMYC Test CTP-1026

4.0 DEFINITIONS

BASE - slotted and drilled, formed plate used in assembly of locking clamp.

BLANKET - a fireproof product consisting of ceramic fiber material sewn into an envelope of fireproof fabric.

BRACKET - galvanized "C" used in conjunction with a base and U-bolt to make a locking clamp.

FENDER WASHER - a flat washer approximately 1½" O.D. with a small inside hole to slip over rail studs. The function is to prevent or minimize damage to blanket by the locknut and to provide more blanket support.

FRAMEWORK - an assembly consisting of four struts and four clamps (friction or locking) that surrounds the cable tray, normally spaced on 18" centers.

FRICTION CLAMP - pre-galvanized device used to connect framework to cable tray.

LOCKING CLAMP - galvanized assembly similar to friction clamp but that is tightly bolted to the cable tray to prevent movement of the framework during seismic event.

LOCKNUT - a specially designed, vibration resistant nut having a plastic insert on or near the threaded portion. These are used primarily on the locking clamp and the rail studs.

RAIL - long sections of strut with threaded anchor studs welded to it. These are attached to the frameworks parallel to the tray. Rails provide anchors to secure the blanket system and add longitudinal support to the framework.

SPRING NUTS - a specially designed rhomboid shaped nut with a spring permanently attached that is used to secure clamps to the struts.

STRUTS - lightweight, pre-galvanized channel used to provide structural support to the blanket system.

U-Bolt - a "U" shaped bolt bent to provide attachment of locking clamp to cable tray.

B 5.0 RESPONSIBILITY

5.1 The authorized installer's ENGINEERING DEPARTMENT shall be responsible to define the scope of work as prescribed on the applicable contract documents and provide the appropriate drawings, specifications, requirements, instructions, etc. to the department responsible for installation.

This department shall also be responsible to provide liason with applicable client personnel and other internal departments to assure smooth flow of communication.

5.2 The authorized installer's PRODUCTION DEPARTMENT shall be responsible for the identification and scheduling of work to be performed as defined on the documents furnished by ENGINEERING.

5.3 The authorized installer's PRODUCTION DEPARTMENT shall be responsible for the performance of installation activities herein prescribed.

5.4 INSULCO, INC. QUALITY ASSURANCE DEPARTMENT shall be responsible that appropriate inspection, documentation and monitoring is provided as established in the applicable INSULCO and/or B&B Insulation Quality Control Procedures.

The quality activities may be performed by the Quality Control Department of any affiliate company of INSULCO, INC. or by any organization granted written authorization by the INSULCO QUALITY ASSURANCE DEPARTMENT utilizing the established INSULCO QC Procedures. If this is the case, INSULCO QA maintains the responsibility for the QA/QC of the system installation and shall certify that the installed system is consistent with the qualification tested system design.

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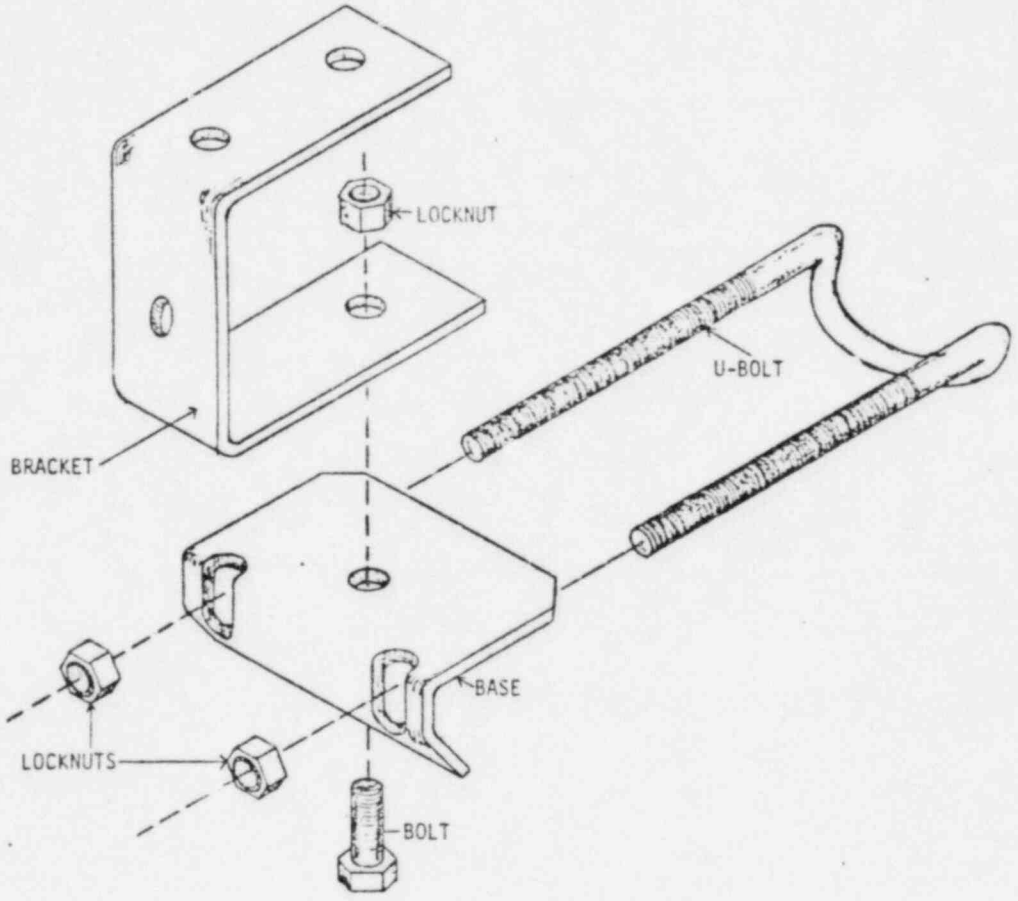
6.0 PROCEDURE

6.1 Locking Clamp Assembly (See Figure 1)

6.1.1 Attach U-bolt to base by sliding U-bolt through slots in base.



LOCKING CLAMP - ASSEMBLY

FIGURE 1

6.1.2 Secure U-bolt by threading locknuts onto legs until threads contact nylon insert in locknut. Do not tighten.

6.1.3 Insert bolt through hole in bottom of base and through hole on long leg of bracket.

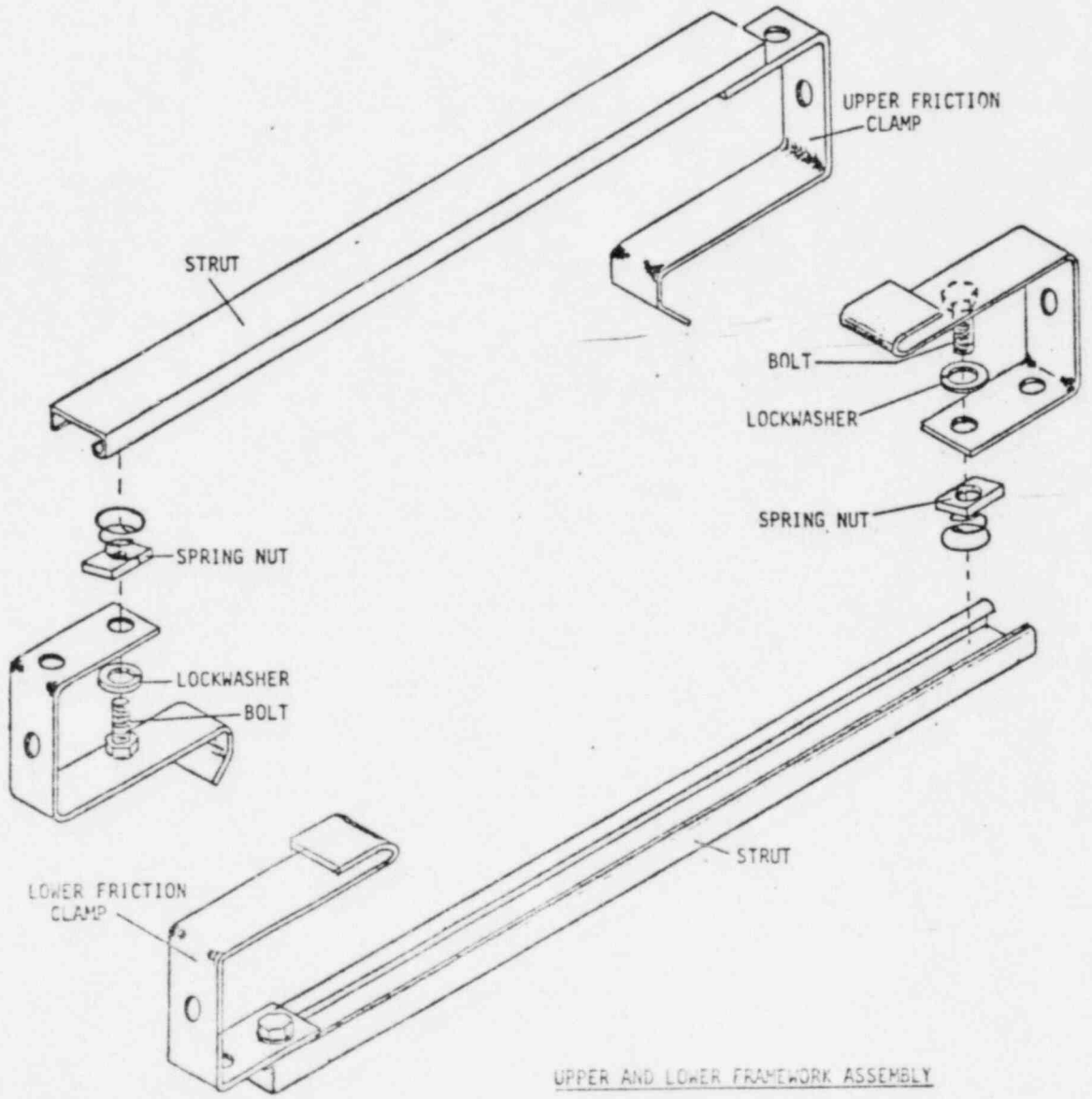
6.1.4 Thread locknut onto bolt and tighten firmly. Keep bracket as square as possible in relation to base.

NOTE: There are two sizes of brackets for use on positive clamps. The bracket to be used on the top of the cable tray has a long leg dimension of 2-3/8". The bracket for the bottom of the tray has a dimension of 2-1/8". Do not mix or interchange top and bottom brackets.

6.2 Framework Assembly and Installation

6.2.1 Insert spring nuts near ends of strut sections.

6.2.2 Attach clamps to each end of horizontal struts using bolts and lockwasher threaded into spring nut. Do not mix clamp types! Use only two upper or two lower friction clamps or two upper or two lower locking clamps per strut section. Do not tighten bolt into spring nut. The spring nut must be free to slide inside strut. (See Figure 2).



UPPER AND LOWER FRAMEWORK ASSEMBLY

FIGURE 2 (TYPICAL-FRICTION CLAMPS)

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6.2.3 Install clamp and strut assembly onto cable tray on approximately 18" centers. At least every seventh assembly must be locking clamps. Do not mix clamp types, locking clamps must be used in sets of four, two top and two bottom (See Figures 3A and 3B).

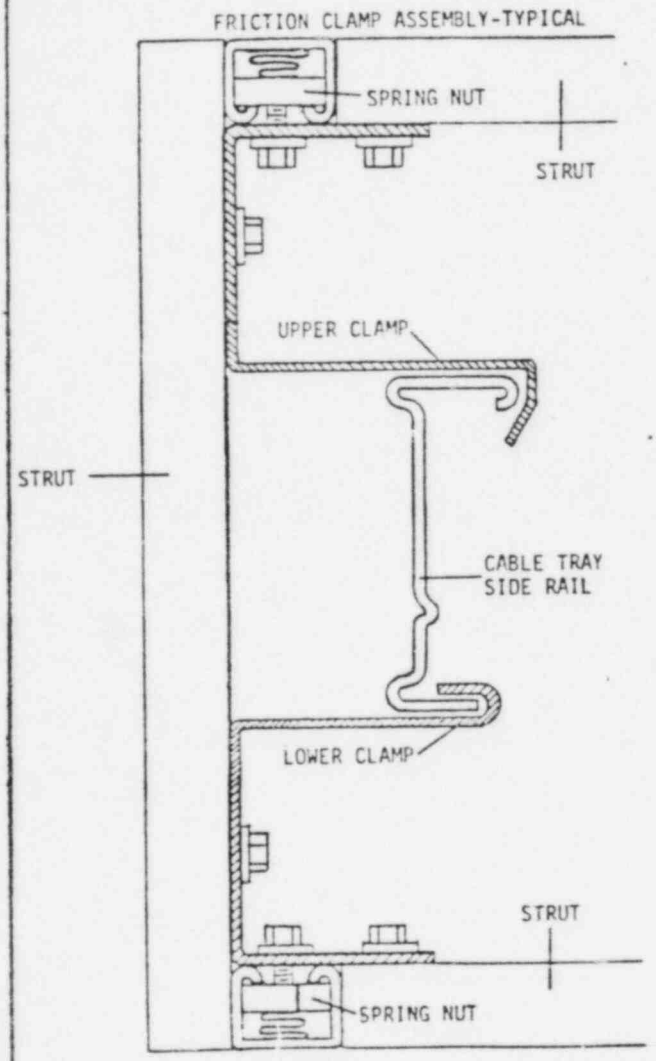

FIGURE 3A

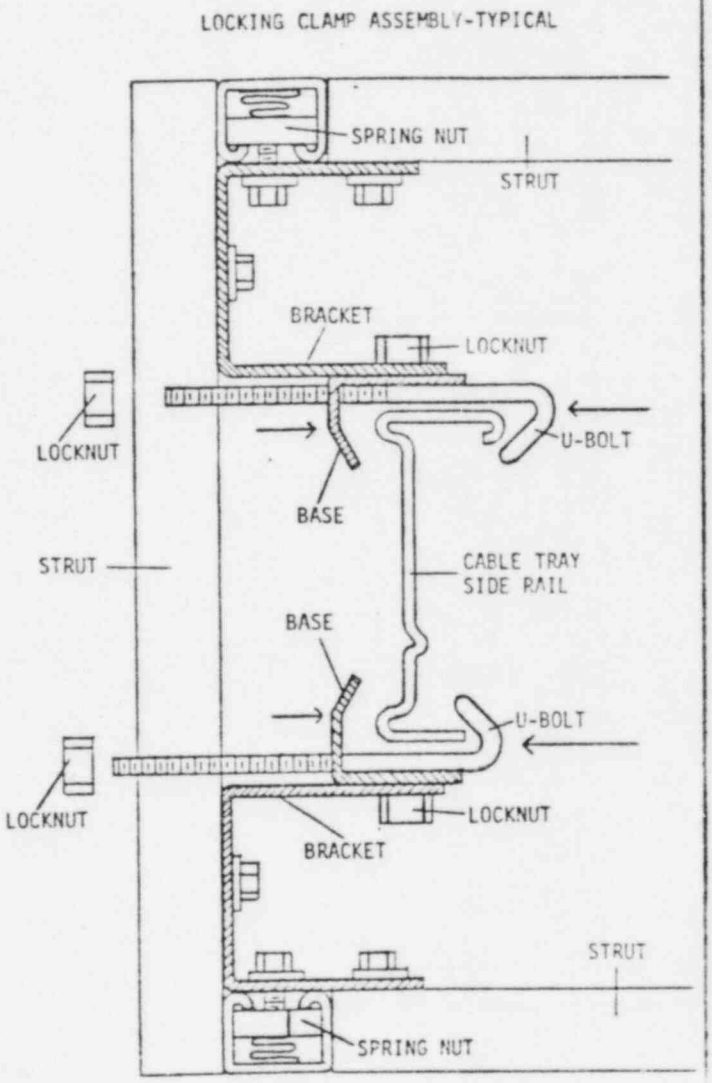

FIGURE 3B

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6.2.4 Attach side struts to horizontal assemblies using bolt and lockwasher threaded into spring nuts. Strut may need to be moved up or down to facilitate bolt insertion. (See Figure 4).

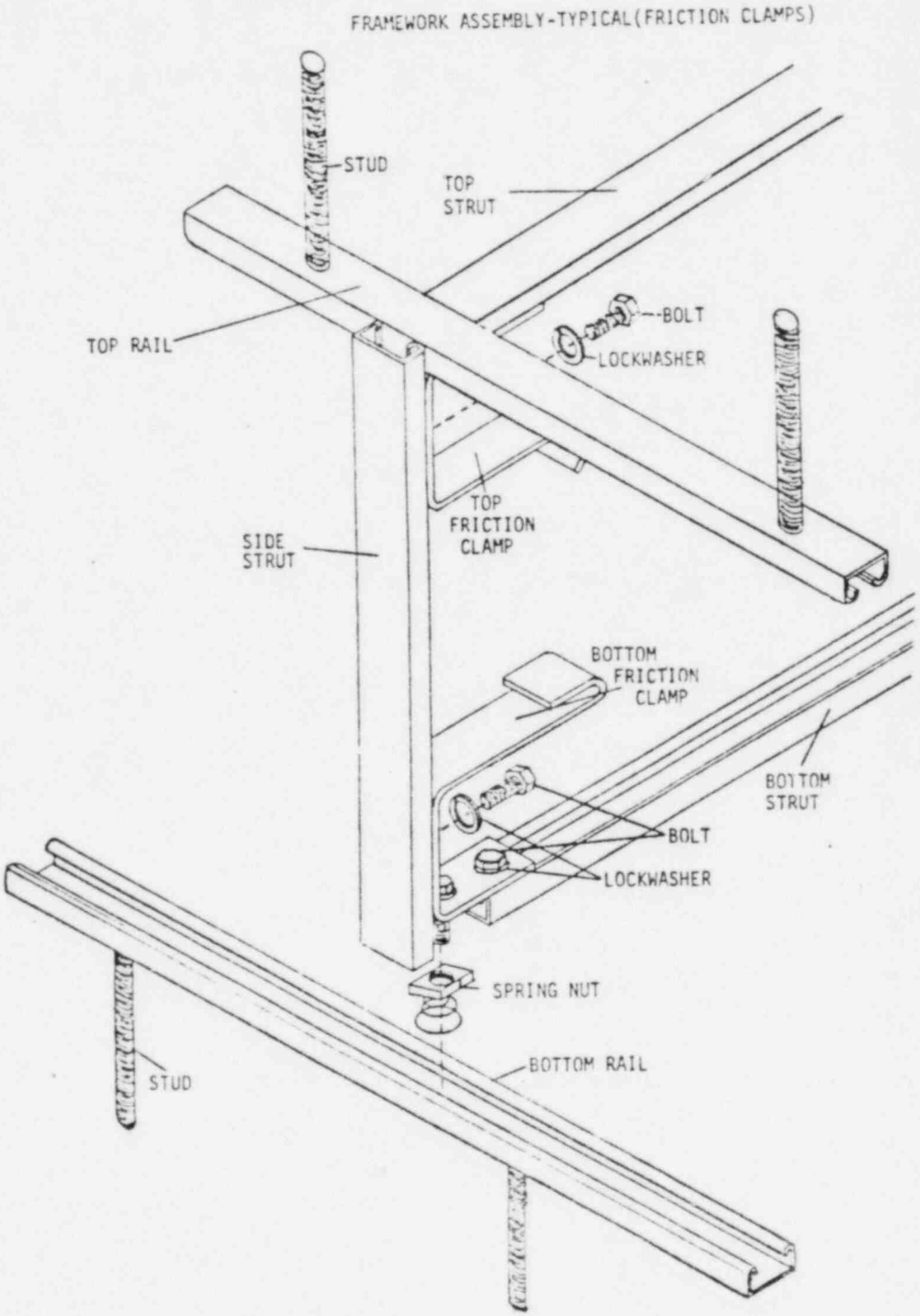

FIGURE 4

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6.2.5 Insert spring nuts into rails on approximate 18" centers.

6.2.6 With the framework sections placed on approximate 18" centers ±1", attach rails using bolts and lockwashers.

6.2.7 Check to ensure that side struts are flush (±¼") with the rails and firmly tighten bolts to secure side struts to clamps.

6.2.8 Firmly tighten bolts to secure rails to clamps.

6.2.9 Remove gaps, if any, between rails and horizontal strut by pulling on opposing side strut or rail and firmly tighten bolt to secure horizontal struts.

6.2.10 Firmly tighten locknuts on positive clamp U-bolt to secure framework.

6.2.11 Frameworks may be shifted, if necessary, by loosening bolt to rail, moving framework as required, and retightening bolt.

6.3 Blanket Installation

6.3.1 Assemble materials, blankets, washers, nuts, etc., in area of cable tray to be protected.

B 6.3.2 Orient blankets in proper relation to cable tray.

6.3.3 Attach side blankets to top rails by forcing blankets onto studs (Use of pointed instrument such as a punch to start holes in blanket is suggested). Ensure that the edge of the blanket extends toward the center of the tray at least 2" past the edge of the studs, remove and re-attach blanket if necessary. (See Figure 5).

6.3.4 Install bottom blankets onto bottom rails. This is easier if both sides are done at the same time working from one end. Use fender washers, locknuts to hold the blanket onto the studs temporarily. Do not tighten the locknuts or damage the plastic insert. (See Figure 6).

6.3.5 Attach lower end of side blankets to bottom rail. This is best accomplished by removing, one at a time, a fender washer and locknut supporting the bottom blanket, forcing the side blanket onto the stud and re-installing the fender washer and locknut. Make sure that the side blankets extend a minimum of 2" past the studs. (See Figure 7).

6.3.6 Place top blanket on top of frameworks approximately centered. Push blanket onto studs and install fender washers and locknuts. (See Figure 8).

6.3.7 Tighten locknuts onto studs until the blankets are compressed approximately 1/2".

6.3.8 At blanket system continuation joints, the continuing blanket system myst overlap 4" - 6" onto the other system. (See Figure 9).

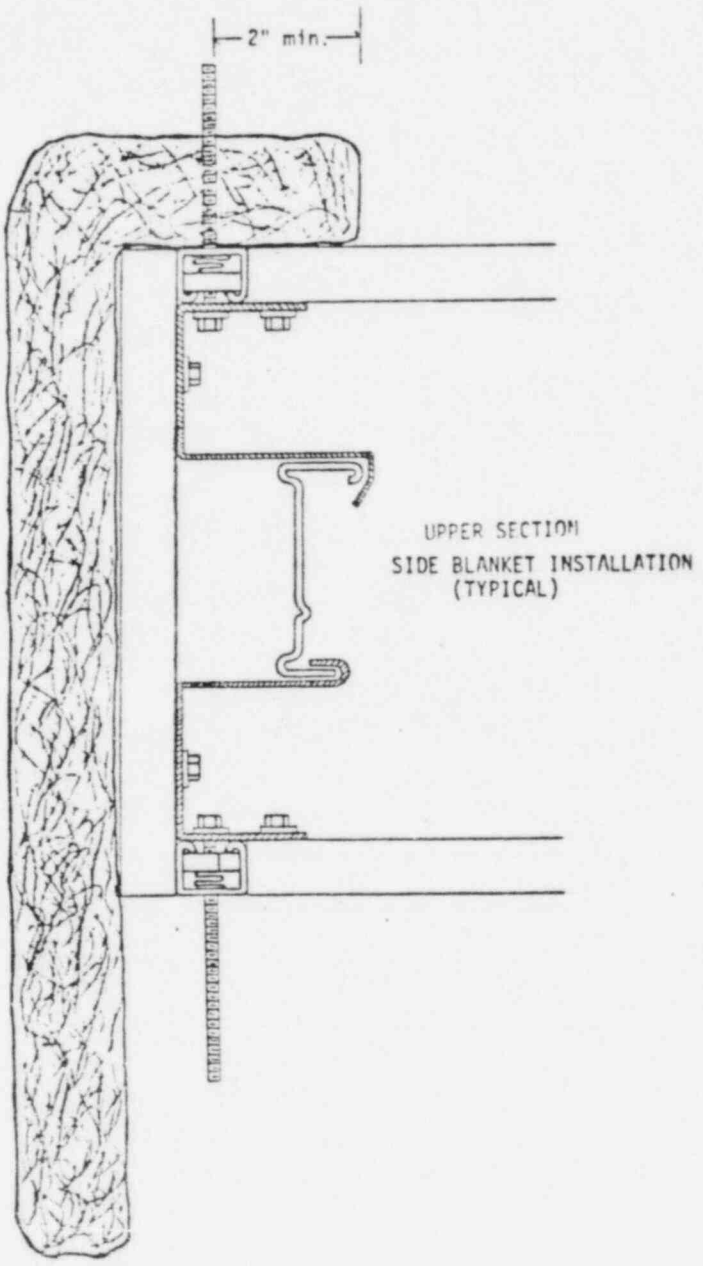

FIGURE 5

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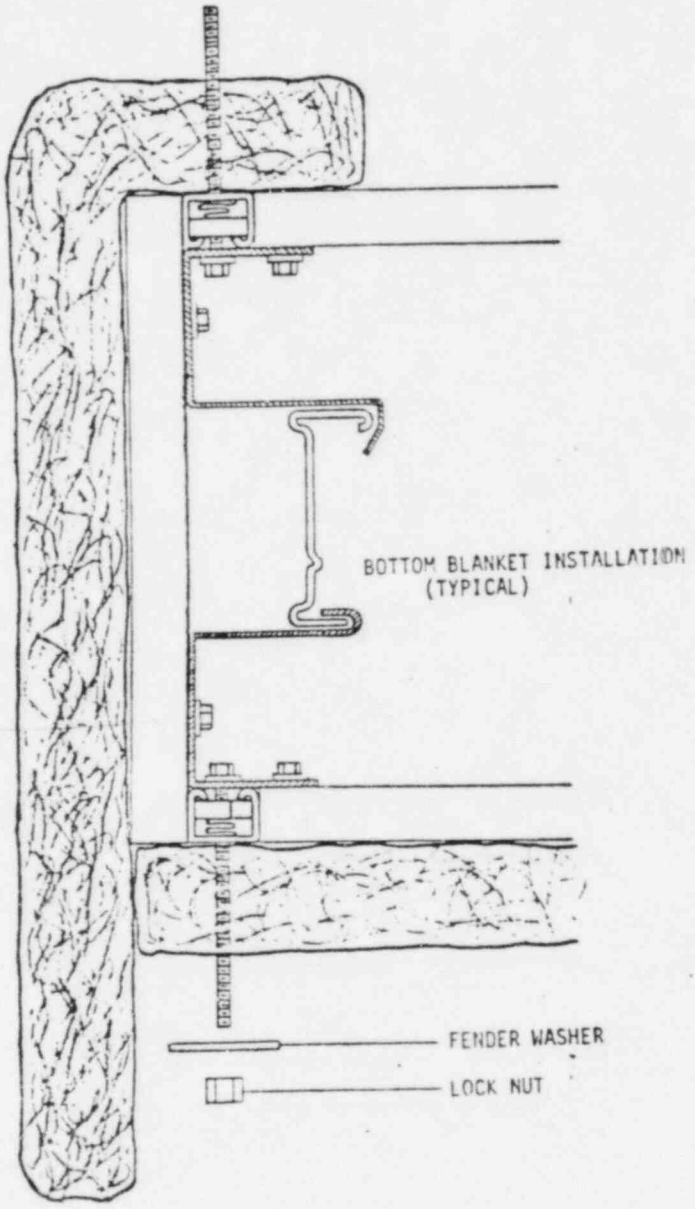

FIGURE 6

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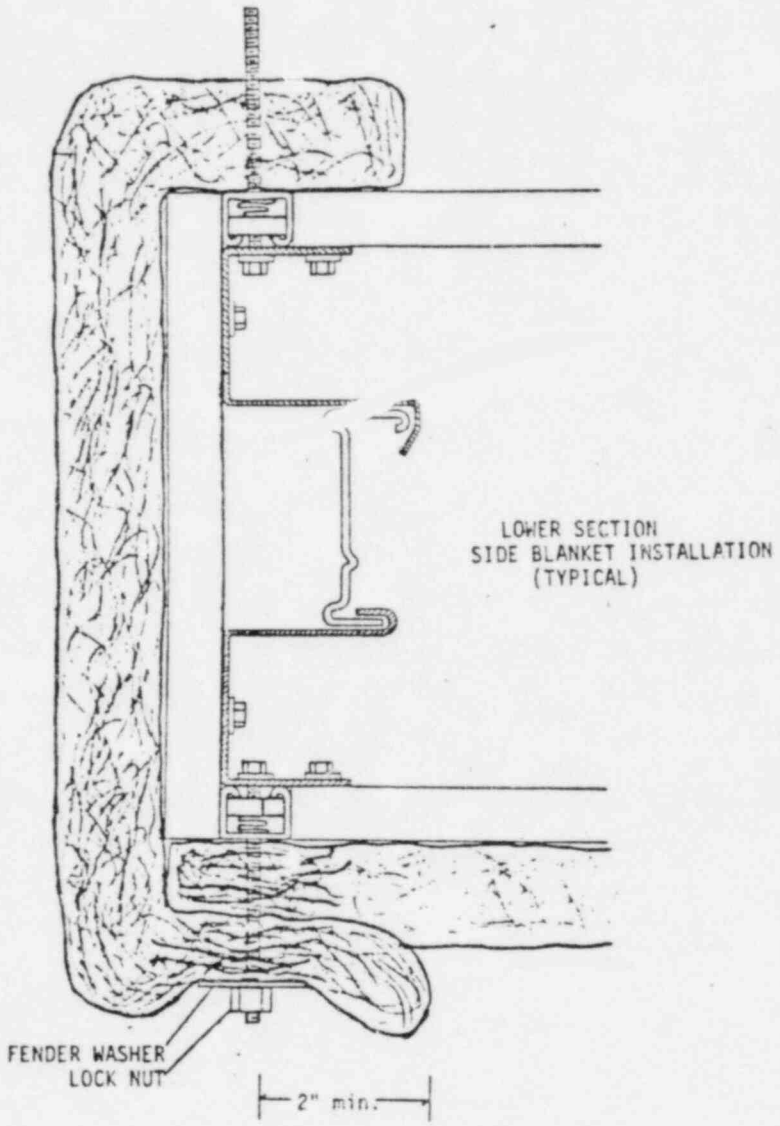

FIGURE 7

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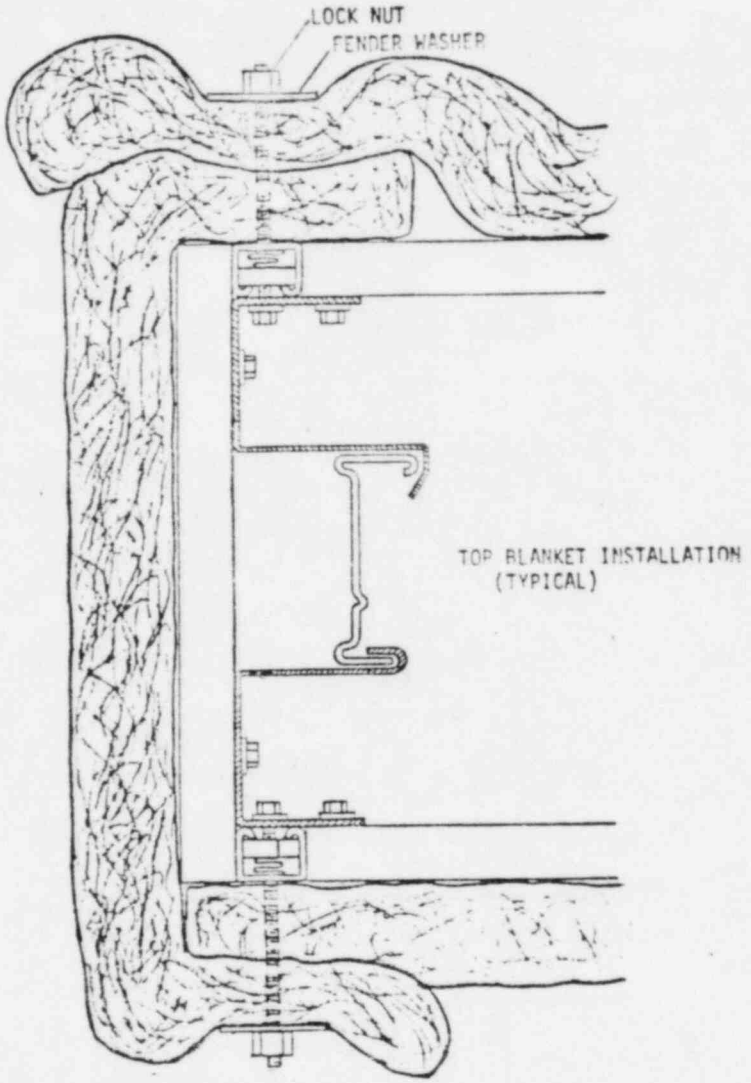

FIGURE 8

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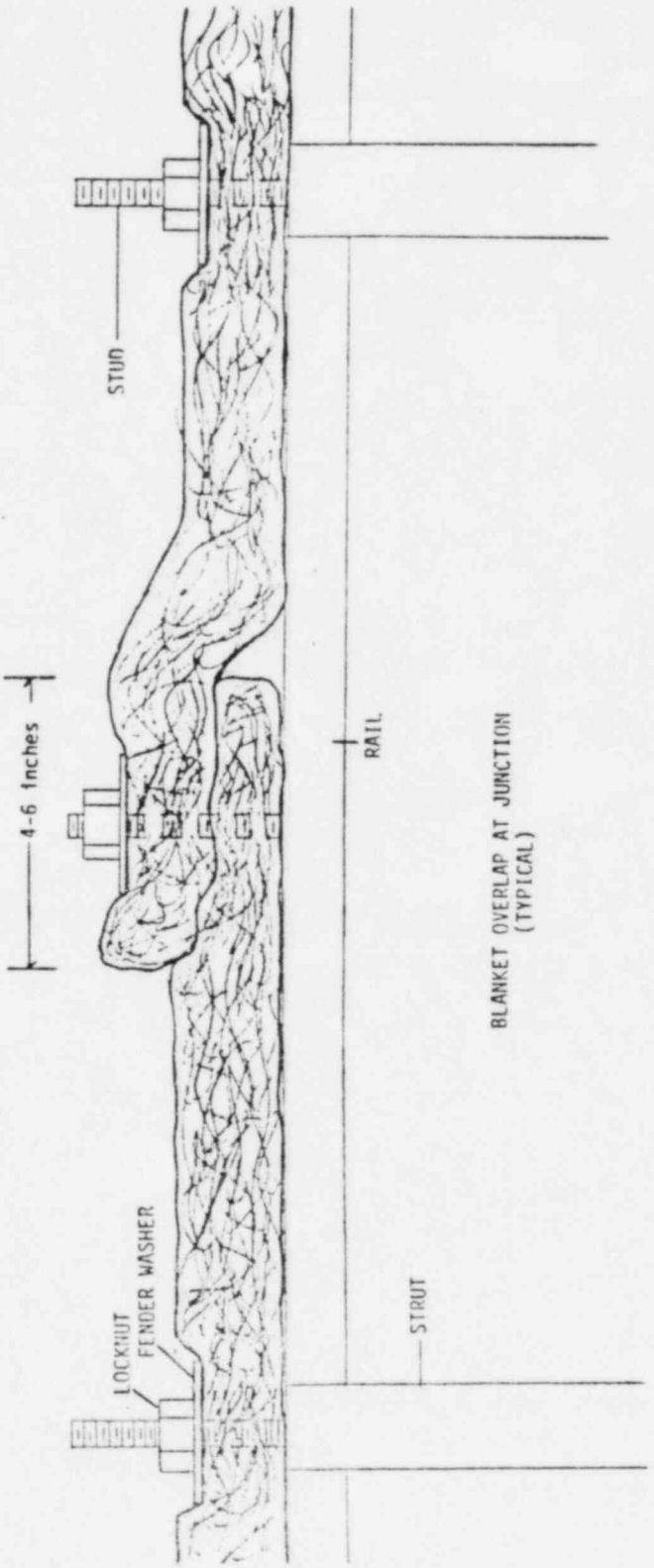

FIGURE 9