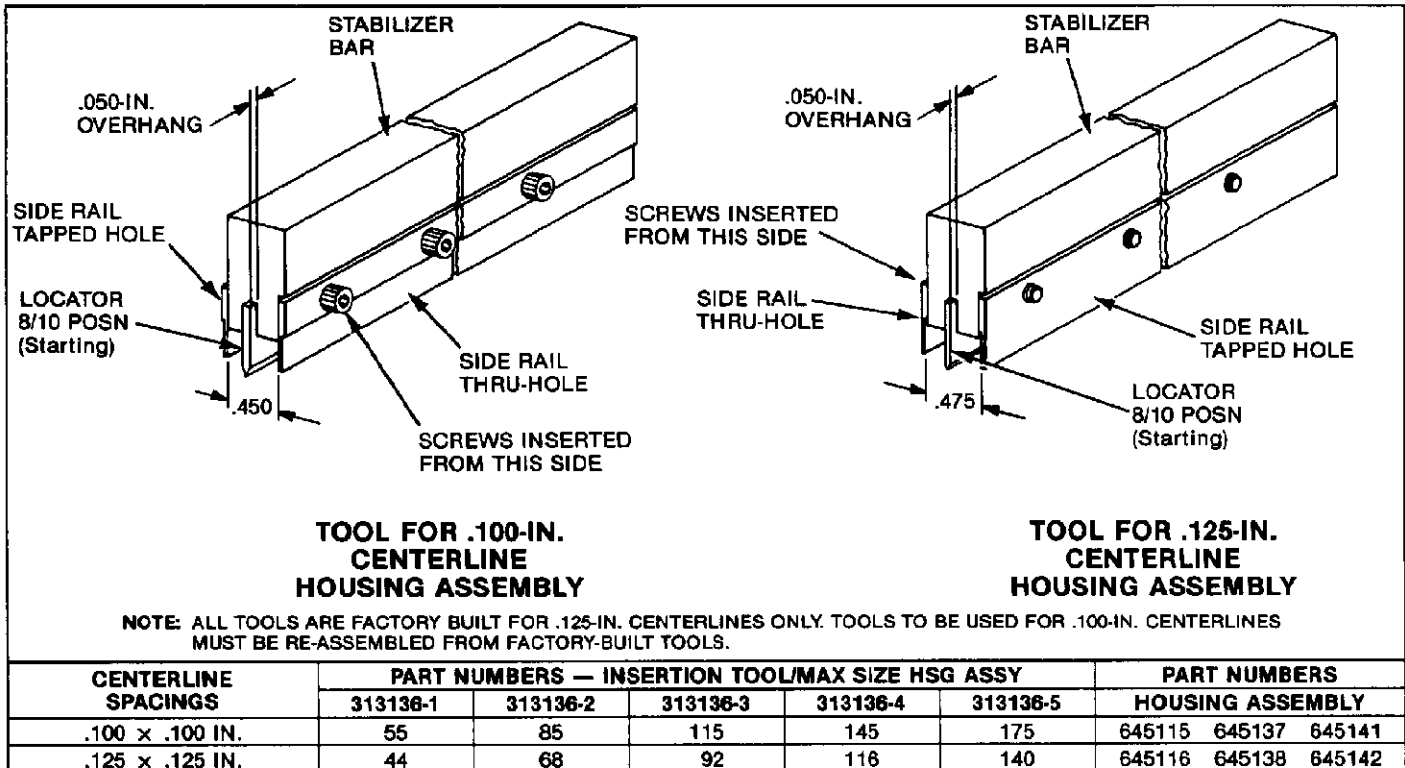


**AMP\* HOUSING ASSEMBLY  
INSERTION TOOL 313136  
FOR AMP\* ZERO INSERTION FORCE (ZIF)  
LINEAR CARD-EDGE CONNECTORS  
WITH ACTION PIN\* CONTACTS**

Section I of this instruction sheet provides application procedures for AMP housing assembly insertion tools.

Section II provides maintenance and inspection procedures for AMP housing assembly insertion tools.



**Fig. I-1**

**SECTION I APPLICATION**

**I-1. INTRODUCTION**

This instruction sheet (IS) covers the use of AMP Zero Insertion Force (ZIF) Linear Card-Edge Connector Housing Assembly Insertion Tools 313136-1 through 313136-5. These tools are designed to insert the housing assemblies listed by part number in Figure I-1 onto dual rows of ACTION PIN contacts that have been seated onto a printed circuit (pc) board using an AMP T-Bar Applicator. The contacts are on centerlines of either .100 or .125 in.

**NOTE** Side rail offsets are turned outward for .100-in. centerlines and inward for .125-in. centerlines.

Five versions of the factory-built tool 313136 are available to accommodate (1) a variety of housing assembly sizes and (2) the two centerline spacings. Each tool is supplied in one of five sizes; each size is represented by the maximum number of contacts

(see Figure I-1). Use the chart in Figure II-1 for the number of components needed per housing assembly size.

Read this material thoroughly before starting.

**NOTE** All dimensions presented on this instruction sheet are in inches.

**I-2. DESCRIPTION**

Each tool features a stabilizer bar, two side rails, one starting 8/10 locator, a specified number of 8/10 locators, and a specified number of socket head cap screws. For some housing assembly sizes, a 12/15 locator is required. The specified number of 8/10 locators and cap screws, and whether a 12/15 locator is needed depends on the size of the housing assembly (see chart, Figure II-1).

The stabilizer bar, the main body of the tool, houses the side rails and locators and is provided in five different sizes. The side rails are supplied in two styles, one with *tapped holes*, and the other with *thru-holes*. They hold the housing assembly wings

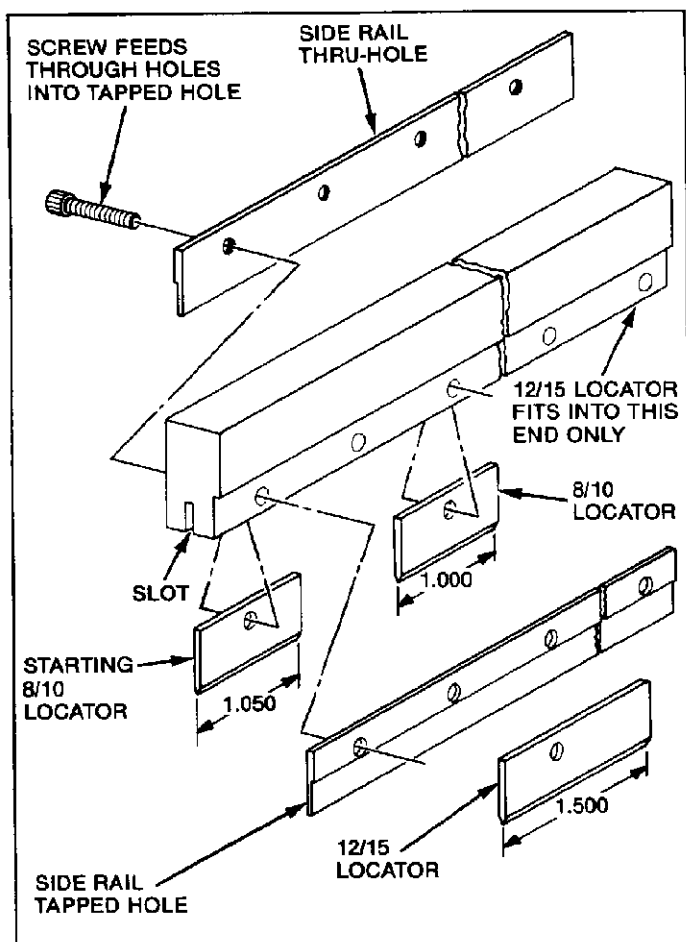


Fig. I-2

in place during the insertion process. When a side rail is secured to the stabilizer bar, an outer marking indicates the correct centerline of the housing assembly. See Figure I-1.

Locators, available in three styles, are designed to spread apart the ACTION PIN contacts during the insertion process.

Each style has a different width as shown in Figure I-2. The locators are held in place by screws which pass through both the *side rail with the thru holes* and the stabilizer bar, and then thread into the *side rail with the tapped holes*, retaining the tool components onto the stabilizer bar.

### I-3. TOOL SETUP PROCEDURE

The starting 8/10 locator is *always* located at the end of the stabilizing bar with the shorter distance from the center of the thru hole to the end of the bar (.500 in., see Figure I-2). This locator *always* has a .050-in. overhang, a fact that is helpful to know not only when assembling a tool but for orienting that tool with the housing assembly during the insertion process (see Paragraphs I-3 and I-4 and Figure I-5).

At the opposite end of the bar is either a 8/10 locator or a 12/15 locator. In between those two locators are 8/10 locators. The easiest way to disassemble and reassemble a tool to be used for housing assemblies with .100-in. centerline spacings is:

1. Disassemble the entire tool by taking out the socket head cap screws.
2. Find out the size of the housing assembly and the number of components (screws and locators) needed from the chart in Figure II-1.
3. Position the starting 8/10 locator at the .500-in. end of the stabilizer bar and either a 8/10 or a 12/15 locator at the other end. Position the side rails with the side rails outward as shown in Figure I-3.
4. Fill in the remaining space between the two locators at each end with 8/10 locators. See Figure I-4.

The reassembly of the tool for .125-in. centerline spacings is exactly the same except the side rails do not have to be reversed.

### I-4. PROCEDURES, .100-IN. CENTERLINE SPACINGS

#### A. Modifying Tool 313136( )

The tool must be setup to accommodate (1) .100-in. centerline housing assemblies and (2) a particular size assembly. This involves repositioning the side rails (Figure I-3) and reassembling the tool using the required number of 8/10 and 12/15 locators as specified in the chart in Figure II-1.

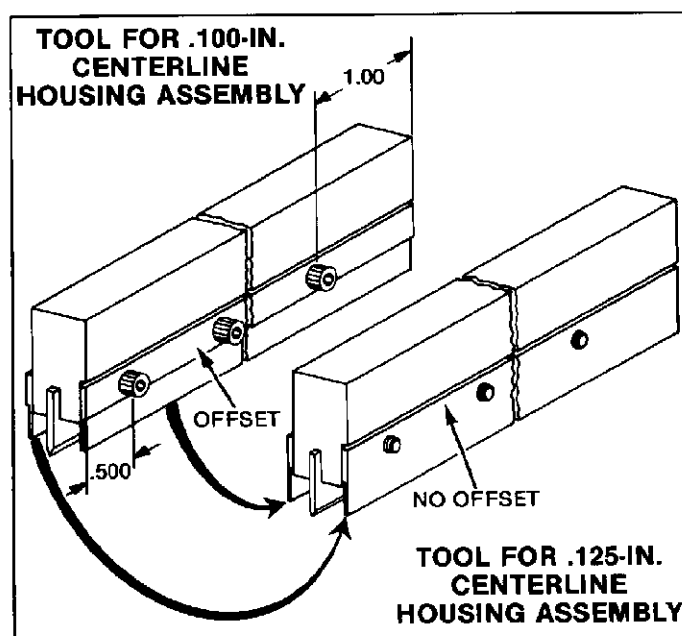


Fig. I-3

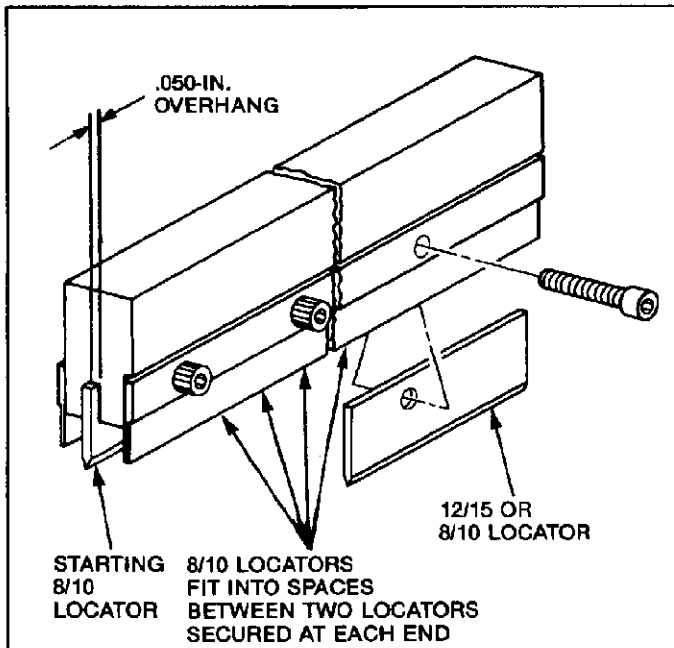


Fig. I-4

### B. Inserting Housing Assembly Over Contacts

The following procedures are recommended to insert the housing assembly over the seated ACTION PIN contacts:

1. First, check to make sure tool 313136-( ) is compatible with both the centerline spacing and the size of your housing assemblies to be inserted.

2. The ZIF housing assembly should be in the CLOSED position before beginning the insertion process. For lever-actuated connectors, move the lever to the UP position as shown in View A of Figure I-5; for bellcrank actuated connectors, move the bellcrank IN.

3. With the housing assembly CLOSED, position the starting 8/10 locator at the end of the housing assembly that has the actuator (cam). See View B, Figure I-5.

4. Partially insert the locators into the card slot, making sure that the locator at the end opposite the starting 8/10 locator is against the housing assembly's card slot.

5. Continue to fit the tool into the housing assembly until the stabilizer bar bottoms on top of the housing assembly. See View C, Figure I-5.

6. Next, pick up the housing assembly and tool combination and align the housing assembly with the seated contacts.

7. Start the housing assembly and tool combination onto the contacts, making sure all contacts enter the correct cavities of the housing assembly.

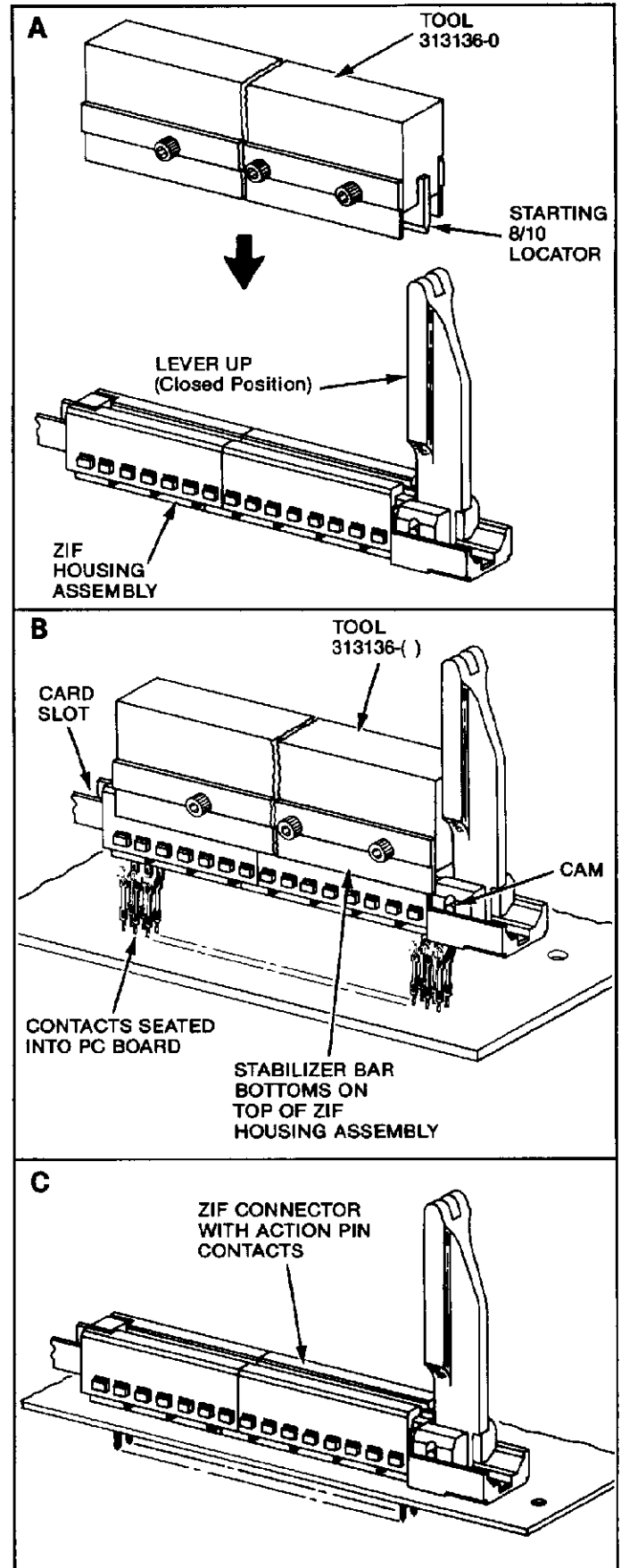


Fig. I-5

8. Position the housing assembly and tool combination under the ram of an appropriate applicator. The applicator can be either manual, air-controlled, or hydraulic-controlled and capable of applying 40 lb per contact post.

9. Actuate the applicator until the ram forces the housing assembly to bottom on the pc board.

**NOTE**

*Excessive air or hydraulic pressure without a mechanical stop will cause damage to the ZIF connector.*

10. On particularly large size connectors, check to make sure both ends of the connector are fully bottomed. It may be necessary to move the ram off center and repeat step 9 to ensure the connector is bottomed in its entire length. (A properly seated housing assembly is shown in View C of Figure I-5.)

11. Move the ram to the UP position.

12. Remove the housing assembly insertion tool from the connector.

**AMP HOUSING ASSY INSERTION TOOL 313136****CAUTION**

*Do not operate the actuator (cam) of the housing assembly during the time the tool's locators are in the card slot as damage may occur to the connector housing assembly.*

**I-5. PROCEDURES, .125-IN. CENTERLINE SPACINGS****A. Modifying Tool 313136( )**

If the size of the housing assembly is compatible with the tool, follow the procedures in Paragraph B.

If the housing assembly is not compatible with the tool, the tool must be modified to accommodate the housing assembly. Refer to Paragraphs I-2 and I-3 and Figures I-1 through I-4.

**B. Inserting Housing Assembly Over Contacts**

If assured that the tool, housing assembly, and the number of seated contacts are compatible, the insertion process can be performed. The insertion process for .125-in. centerline housing assemblies is the same as .100-in. centerline housing assemblies. Refer to Paragraph I-4.

Section I of this instruction sheet provides application procedures for AMP housing assembly insertion tools.

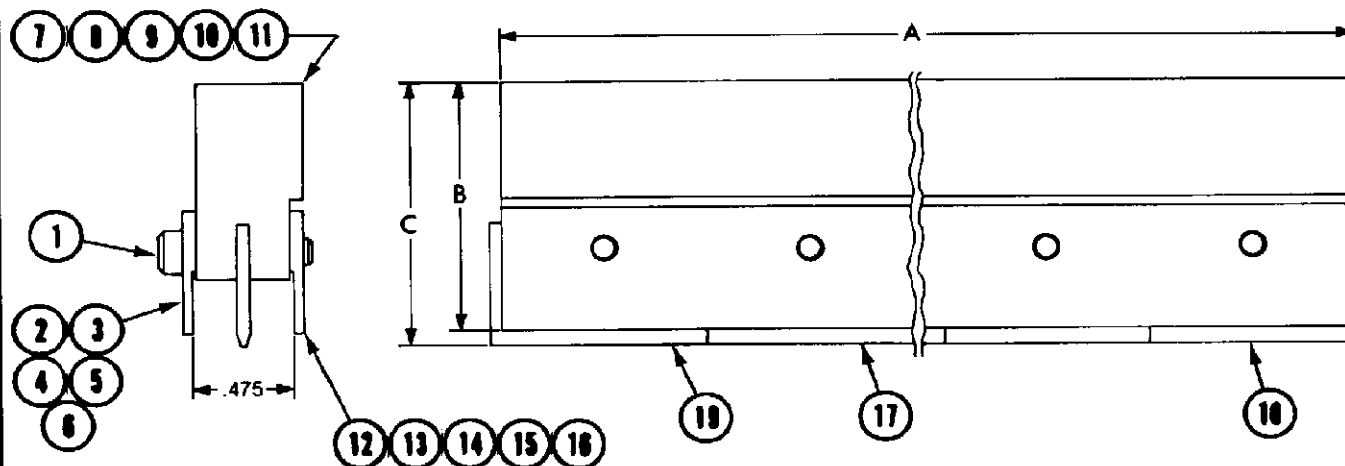
Section II provides maintenance and inspection procedures for AMP housing assembly insertion tools.

### USE THIS CHART WHEN CHANGING FROM ONE INSERTION TOOL SIZE TO ANOTHER

	TOOL 313136-1								TOOL 313136-2								TOOL 313136-3								TOOL 313136-4								TOOL 313136-5							
.100-IN. C.L.	30/	35/	40/	45/	50/	55/	60/	65/	70/	75/	80/	85/	90/	95/	100/	105/	110/	115/	120/	125/	130/	135/	140/	145/	150/	155/	160/	165/	170/	175/										
.125-IN. C.L.	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100	104	108	112	116	120	124	128	132	136	140										
Screws	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17										
Loc, 8/10	2	1	3	2	4	3	5	4	6	5	7	6	8	7	9	8	10	9	11	10	12	11	13	12	14	13	15	14	16	15										
Loc, 12/15	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1										
Loc, Start	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1										

NOTE: THE ABOVE CHART SHOWS THE NUMBER OF COMPONENTS NEEDED PER HOUSING ASSEMBLY SIZE. THE FIRST ROW UNDER THE TOOL NUMBERS (30, 35, 40, ETC.) LISTS THE HOUSING ASSEMBLIES WITH CONTACTS ON .100-IN. CENTERLINE SPACINGS; THE SECOND ROW (24, 28, 32, ETC.) LISTS THE HOUSING ASSEMBLIES WITH CONTACTS ON .125-IN. CENTERLINE SPACINGS.

ONE ADDITIONAL 8/10 DUAL POSITION LOCATOR (PART NO. 313136-1) IS PACKAGED SEPARATELY IN THE TOOLING SENT TO THE CUSTOMER PLANT. THIS COMPONENT IS SUPPLIED TO ENSURE THAT THE TOOL WILL ACCOMMODATE THE VARIETY OF HOUSING ASSEMBLY SIZES LISTED ABOVE.



ITEM	PART NO.	DESCRIPTION	QTY REQUIRED	TOOL SPECIFICATIONS				
				PART NO.	DIMENSIONS			WEIGHT (LB)
					A	B	C	
1	2- 21000-1	SCREW, CAP	Note 1	313136-1	5.500	1.154	1.225	0.75
2	313160-1	SIDE RAIL, Tapaped Hole, Tool 313136-1	1	313136-2	8.500	1.154	1.225	1.00
3	313160-2	SIDE RAIL, Tapaped Hole, Tool 313136-2	1	313136-3	11.500	1.154	1.225	1.50
4	313160-3	SIDE RAIL, Tapaped Hole, Tool 313136-3	1	313136-4	14.500	1.154	1.225	1.85
5	313160-4	SIDE RAIL, Tapaped Hole, Tool 313136-4	1	313136-5	17.500	1.154	1.225	2.25
6	313160-5	SIDE RAIL, Tapaped Hole, Tool 313136-5	1	ENGINEERING APPROVAL  George Hoover				DATE  1-16-87
7	313161-1	BAR, Stabilizer, Tool 313136-1	1					
8	313161-2	BAR, Stabilizer, Tool 313136-2	1	George Hoover				1-16-87
9	313161-3	BAR, Stabilizer, Tool 313136-3	1					
10	313161-4	BAR, Stabilizer, Tool 313136-4	1	George Hoover				1-16-87
11	313161-5	BAR, Stabilizer, Tool 313136-5	1					
12	313162-1	SIDE RAIL, Thru-Hole, Tool 313136-1	1	George Hoover				1-16-87
13	313162-2	SIDE RAIL, Thru-Hole, Tool 313136-2	1					
14	313162-3	SIDE RAIL, Thru-Hole, Tool 313136-3	1	George Hoover				1-16-87
15	313162-4	SIDE RAIL, Thru-Hole, Tool 313136-4	1					
16	313162-5	SIDE RAIL, Thru-Hole, Tool 313136-5	1	George Hoover				1-16-87
17	313163-1	LOCATOR, 8/10 posn	Note 2					
18	313163-2	LOCATOR, 12/15 posn, all tools	1	George Hoover				1-16-87
19	313163-3	LOCATOR, Starting, 8/10 posn, all tools	1					

NOTE 1: FIVE FOR TOOL 313136-1; EIGHT FOR TOOL 313136-2; 11 FOR TOOL 313136-3; 14 FOR TOOL 313136-4; AND 17 FOR TOOL 313136-5.

NOTE 2: FOUR FOR TOOL 313160-1; SEVEN FOR TOOL 313136-2; 10 FOR TOOL 313136-3; 13 FOR TOOL 313136-4; AND 16 FOR TOOL 313136-5.

Fig. II-1

## SECTION II MAINTENANCE/INSPECTION

### II-1. TOOL CERTIFICATION

The tool is assembled and certified before shipment. It is suggested that the tool be inspected

immediately upon its arrival in your plant to ensure that it has not been damaged during shipment, and that it conforms to the dimensions given in Figure II-1.

## **II-2. MAINTENANCE**

### **A. Daily Maintenance**

It is recommended that each operator be made aware of, and responsible for, the following steps of daily maintenance:

1. Remove dust, moisture, and other contaminants with a clean, soft, brush, or a clean, soft, lint-free cloth. Do *NOT* use objects that could damage the side rails or other tool components.
2. Ensure that the screws are in place and secured.
3. When the tool is not in use, store it in a clean, dry area.

### **B. Periodic Inspection**

Regular inspections should be performed by quality control personnel. A record of scheduled inspec-

## **AMP HOUSING ASSY INSERTION TOOL 313136**

tions should remain with the tool or be supplied to supervisory personnel responsible for the tool. The inspection frequency should be based on the amount of use, working conditions, operator training and skill, and established company standards.

### **II-3. REPAIR**

The parts listed in Figure II-1 are customer-replaceable. A complete inventory may be stocked and controlled to prevent lost time when replacement of parts becomes necessary. The tool may also be returned to AMP for evaluation and repair, if desired. Send the tool with a written description of the problem to:

AMP Incorporated  
Customer Repair  
1523 North 4th Street  
Harrisburg, PA 17102-1604

or a wholly owned subsidiary of AMP Incorporated.

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