

CONNECTOR		MANUAL INSERTION TOOL	
IN-ROW AND ROW-TO-ROW CENTERLINE SPACING	PART NUMBER	NUMBER OF DUAL POSITIONS	DASH NUMBER (Base No. 58142)
.125 x .250 ↓	119199-1 thru -46	15 thru 60	-1 thru -46
	119200-1 thru -46	↓	↓
	119201-1 thru -46		
	119202-1 thru -46		
	119453-1 thru -46		
	119458-1 thru -46		
	119822-1 thru -46		
	119420-1 thru -31	30 thru 60	-16 thru -46
	119421-1 thru -31	↓	↓
	119422-1 thru -31		
	119423-1 thru -31		
	119839-1 thru -31		
	119480-1 and -2	50 and 22	-36 and -8
	119572-1 and -2	48 and 60	-34 and -46
	119666-1 and -2	50 and 43	-36 and -29
	119739-1	59	-45
	119786-1 thru -7	40, 60, 22, 28, 15, 30, and 35	-26, -46, -8, -14, -1, -16, and -21
	119787-1	45	-31
	119788-1 thru -9	15, 22, 28, 30, 32, 35, 40, 45, and 60	-1, -8, -14, -16, -18, -21, -26, -31, and -46
	119792-1 and -2	22 and 40	-8 and -26
119860-1	50	-36	
119914-1, -2, and -5	20, 25, and 50	-6, -11, and -36	

**Fig. 1**

**1. INTRODUCTION**

This instruction sheet (IS) covers AMP PACE Connector Manual Insertion Tool 58142-[ ]. The tool is used to insert AMP PACE connectors having .125-x .250-in. contact centerlines and no card scoops into printed circuit (pc) boards.

Figure 1 lists the connectors used with the tool. Note that for connectors with 15 through 60 dual positions,

the dash number for the connector corresponds to the dash number for the tool. For example, a 3-119199-2 connector is inserted by using a 3-58142-2 tool. (The tool dash number is 14 less than the number of dual positions in the connector.) For other connectors, the number of dual positions and corresponding insertion tool dash numbers are listed in Figure 1 in the same sequence as the connector part numbers.

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## NOTE

*All dimensions on this sheet are in inches.*

## 2. DESCRIPTION (Figure 1)

The tool is designed for manual machine insertion of AMP PACE connectors with ACTION PIN contacts into drilled pc boards. Each tool features a push bar to which the tool holder housings are attached. The tool holder housings contain push pins that are held in alignment by locator plates. Guide pins hold the locator plates in place; a tie rod, which passes through the locator plates, maintains their longitudinal alignment.

## NOTE

*The tool is designed for use in manual machines capable of applying an insertion force of 50 lb (max) per contact post.*

## 3. SHUT HEIGHT

The shut height — the distance from the bottom press surface of the ram to the top of the pc board when the ram is down — must be set at 1.5 in. to ensure complete, proper connector insertion.

## 4. APPLICATION

Determine the number of contacts in the connector, and choose the appropriate tool.

## CAUTION

*Make sure you use the correct tool. Using the wrong tool will damage the connector, the tool, or both.*

The connector's contact tips are held in alignment by a plastic strip. The strip is not to be removed either before or after inserting the connector.

Each locator plate is keyed to fit into the connector entry slot. If assembling a tool, make sure that the locator plate at each end of the tool has the key area turned outward. The locator plates also feature positioning tabs that assist in seating the tool.

The tool has a stabilizer pad, attached to the push bar with four screws, that may be permanently attached to the ram of the manual applicator assembly.

## CAUTION

*The minimum length of the ram push surface must equal the length of the stabilizer pad; otherwise, damage to the tool or connector can occur.*

## 5. INSERTION PROCEDURE

1. Select the correct tool for the connector to be inserted.
2. Make sure you have a support template capable of supporting the board and protecting the contact posts during the insertion.
3. Insert the contact posts into the pc board until the splits on the posts begin to enter the pc board holes.
4. Place the pc board onto the board support template, and center the connector under the tool on the ram of the applicator assembly.
5. *Slowly* lower the ram to verify that the connector is aligned with the tooling.
6. Apply force to the ram to seat the connector onto the board. (The insertion tool locator plates will seat in the card entry slot, retract to the tool holder housings, and then seat the connector onto the board. The push pins will push the contact posts into the board to the correct depth.
7. Retract the machine ram.
8. Repeat Steps 3 through 7 until all connectors are inserted into the board.

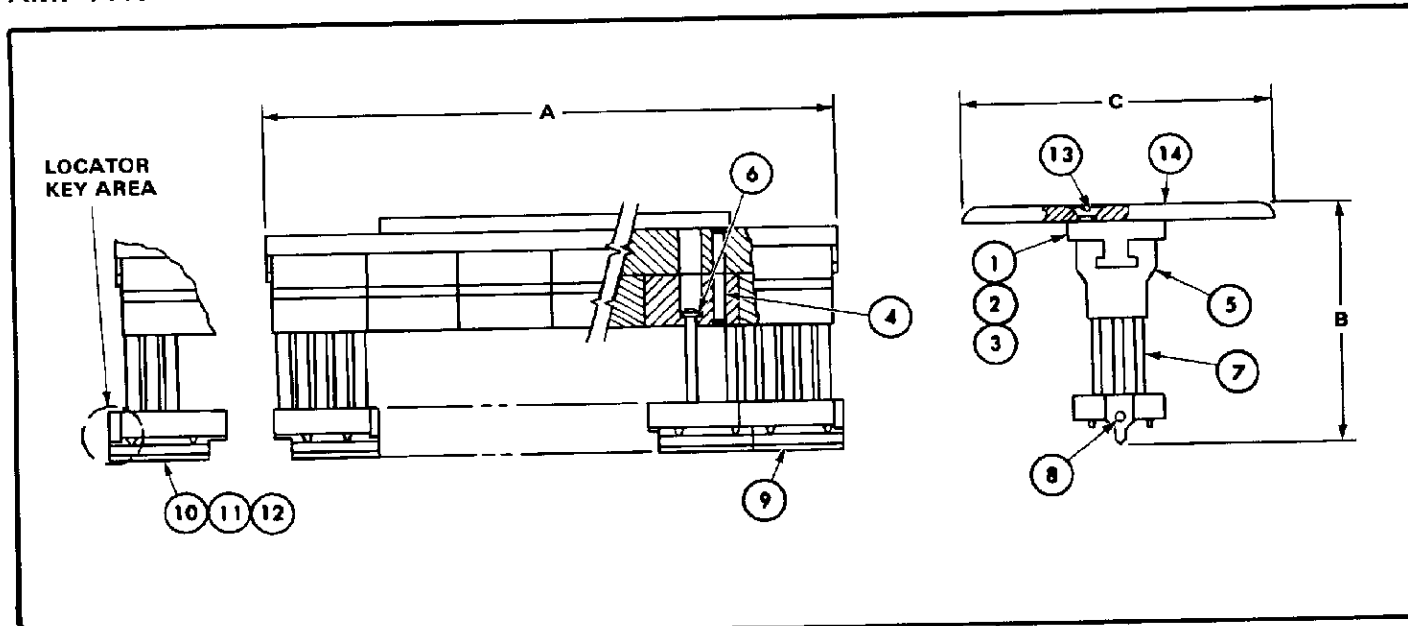
This completes the insertion procedure.

## 6. TOOLING CERTIFICATION (Figure 2)

The tool is assembled and certified before shipment. We suggest that the tool be inspected immediately upon its arrival and at regular intervals to ensure that it has not been damaged during handling and operation.

All the components listed in Figure 2 are customer-replaceable by qualified personnel. Additional tools and replacement parts may be purchased from

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ITEM	PART NUMBER	DESCRIPTION	QUANTITIES REQUIRED
1	312652-1	BAR, Push (For 15-30 Dual Positions)	1
2	312652-2	BAR, Push (For 31-45 Dual Positions)	1
3	312652-3	BAR, Push (For 46-60 Dual Positions)	1
4	21028-8	PIN, Slotted Spring	Note 3
5	312658-1	HOUSING, Tool Holder	Note 3
6	20612-1	"E"-RING	Note 2
7	312027-2	PIN, Push	Note 1
8	312021-1	ROD, Tie	1
9	312628-2	PLATE, Locator	1 (When Required; See Note 1)
10	312634-1	PLATE, Locator (1 Position)	1 (When Required; See Note 1)
11	312634-2	PLATE, Locator (2 Positions)	1 (When Required; See Note 1)
12	312634-3	PLATE, Locator (3 Positions)	1 (When Required; See Note 1)
13	1- 21065-7	SCREW, Flat Hd Mach, No. 6-32 x .18" L	4
14	312637-1	PAD, Stabilizer (-1 thru -16)	1
15	312637-2	PAD, Stabilizer (-17 thru -31)	1
16	312637-4	PAD, Stabilizer (-32 thru -46)	1

TOOL SPECIFICATIONS			WEIGHT (Approx)	ENGINEERING APPROVAL	DATE	
NUMBER	DIMENSION					
	A	B	C			
58142-1 thru 1-58142-6	3.79	1.75	2.00	1 lb (58142-1 Tool)	<i>G. Moore</i>	11/21/84
1-58142-7 thru 3-58142-1	5.67					
3-58142-2 thru 4-58142-6	7.54					

**NOTE 1:** THE NUMBER OF LOCATOR PLATES REQUIRED FOR A GIVEN TOOL IS DETERMINED BY DIVIDING THE NUMBER OF DUAL CONTACT POSITIONS BY FIVE. THE REMAINDER OF THE POSITIONS, IF ANY, WILL REQUIRE AN APPROPRIATE MODIFIED LOCATOR PLATE.

**NOTE 2:** THE NUMBER OF PUSH PINS REQUIRED FOR A GIVEN TOOL IS DETERMINED BY MULTIPLYING THE NUMBER OF DUAL CONTACT POSITIONS BY TWO.

**NOTE 3:** THE NUMBER OF PARTS REQUIRED IS EQUAL TO THE NUMBER OF DUAL POSITIONS IN THE TOOL DIVIDED BY FIVE WITH THE REMAINDER COUNTING AS ONE ADDITIONAL.

Fig. 2