

REMOVAL TOOL	SFP+ CAGE ASSEMBLY	
	CONFIGURATION	DESCRIPTION
1976584-1	1 × 4	With Electromagnetic Interference (EMI) Gasket and Light Pipe
1976597-1	1 × 6	With EMI Gasket or Springs
1976920-1	1 × 2	

Figure 1

## 1. INTRODUCTION

SFP+ Cage Assembly Removal Tool Assemblies 1976584-1, 1976597-1, and 1976920-1 are used to remove an SFP+ cage assembly (described in Figure 1) from the pc board. The removal tool cannot be used to remove cage assemblies from a double-sided pc board; and the removal tool cannot be used to remove the surface mount connector.

Read these instructions thoroughly before using the removal tool.



*Dimensions on this sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.*

## 2. DESCRIPTION

Each removal tool consists of a pin retainer plate, push pin holder, push pin guide, and push pins. See Figure 1.

The pin retainer plate provides a surface to accept the force applied by the application tool to extract the cage assembly from the pc board. The push pin guide can be adjusted to accommodate the thickness of the pc board (the contacts may or may not protrude from the pc board) for proper alignment with the removal tool.

During removal, the push pins are forced through holes in the push pin holder, onto the contacts, and through the holes in the pc board.

## 3. REQUIREMENTS

### 3.1. PC Board Support Fixture (Customer Supplied)

A pc board support must be used to provide proper support for the pc board and to protect the pc board and the connector and cage assembly from damage. The board support fixture must be designed for specific needs using the following recommendations:

- it should be at least 25.4 mm [1 in.] wider than the pc board

- it should have a flat surface with a cutout of at least 28.5 mm [1.12 in.] deep (to allow adequate clearance for the cage assembly)

**3.2. Application Tooling**

Power for the removal tool must be provided by application tools (with a ram) capable of supplying a downward force of 44.5 N [10 lb] per contact. For available application tools, call the TA CENTER at the number at the bottom of page 1.



*Over-driving of the cage assembly could cause damage to the pc board.*

**4. REMOVAL PROCEDURE**

Place the pc board (with the cage assembly and connector) on the board support fixture. For 1 × 6 cage assemblies, make sure there is support at the back of the cage assembly (see Figure 1); otherwise, the pc board could bow and the removal tool would not be able to remove the cage assembly.

Determine whether the contacts protrude or do not protrude from the pc board, then proceed with the applicable instruction:

**4.1. Contacts Protrude from PC Board (Figure 2)**

1. Grasp the pin guide plate or guide block, and pull it down as far as it will go (the push pins or short and/or long pins should NOT protrude from the bottom of the pin guide plate or guide block).
2. While holding the pin guide plate or guide block in place, *carefully* position the removal tool onto the cage assembly so that each contact (except

the connector contacts and the contacts near the connector) enters a hole in the pin guide plate or guide block.

3. Center the removal tool (with cage assembly and connector, pc board, and support fixture) under the ram of the application tool. Slowly lower the ram until it just meets the removal tool. Verify alignment of support fixture, pc board, cage assembly and connector, and removal tool.



*Damage to the pc board or cage assembly and connector may occur if the removal tool is not properly aligned with the ram before cycling the application tool.*

4. Cycle the application tool to extract the cage assembly from the pc board. Then retract the ram, and carefully remove the removal tool from the pc board.

**4.2. Contacts DO NOT Protrude from PC Board (Figure 3)**

1. Grasp the pin guide plate or guide block, and push it up as far as it will go (the push pins or short and/or long pins should protrude from the bottom of the pin guide plate or guide block).
2. *Carefully* position the removal tool onto the cage assembly so that each push pin or short and/or long pin enters a pc board hole containing a contact (except the connector contacts and the contacts near the connector).
3. Center the removal tool (with cage assembly and connector, pc board, and support fixture) under the ram of the application tool. Slowly lower the ram until it just meets the removal tool. Verify alignment of support fixture, pc board, cage assembly and connector, and removal tool.

**Contacts Protruding from PC Board**

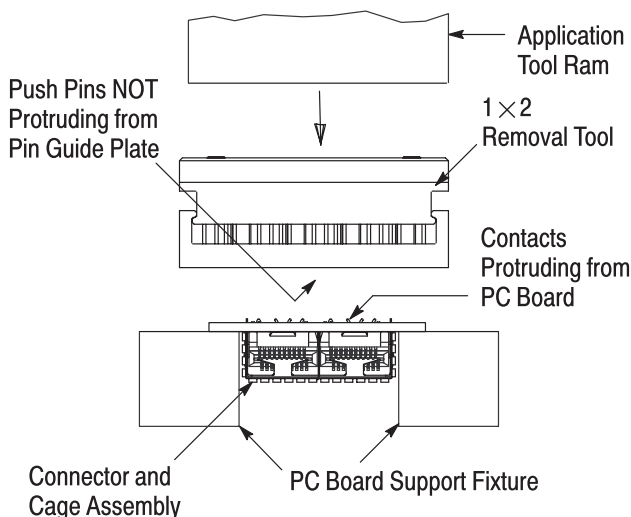


Figure 2

**Contacts NOT Protruding from PC Board**

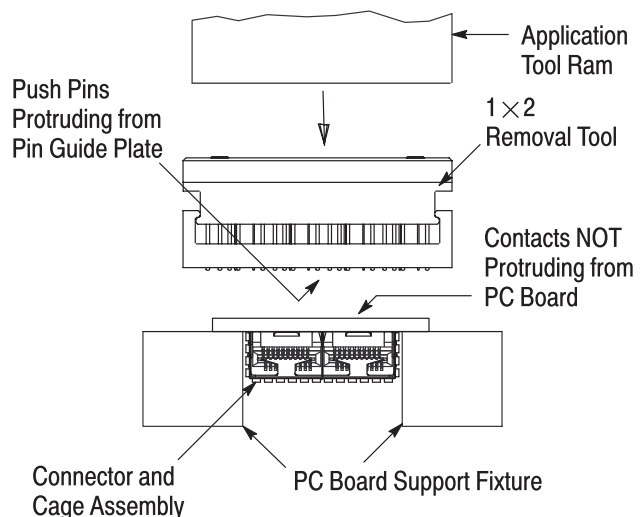


Figure 3



Damage to the pc board or cage assembly and connector may occur if the removal tool is not properly aligned with the ram before cycling the application tool.

4. Cycle the application tool to extract the cage assembly from the pc board. Then retract the ram, and carefully remove the removal tool from the pc board.

**5. MAINTENANCE AND INSPECTION**

The removal tool is assembled and inspected before shipment. It is recommended that the removal tool be inspected immediately upon arrival at your facility to ensure that it has not been damaged during shipment and that it conforms to the dimensions provided in Figure 4.

**5.1. 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 contaminants with a clean, soft brush or a lint-free cloth. DO NOT use objects that could damage the removal tool components.
2. When the removal tool is not in use, store it in a clean, dry area.

**5.2. Periodic Inspection**

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the removal tool or be supplied to personnel responsible for the removal tool. Inspection frequency should be based on amount of use, working conditions, operator training and skill, and established standards.

**6. REPLACEMENT AND REPAIR**

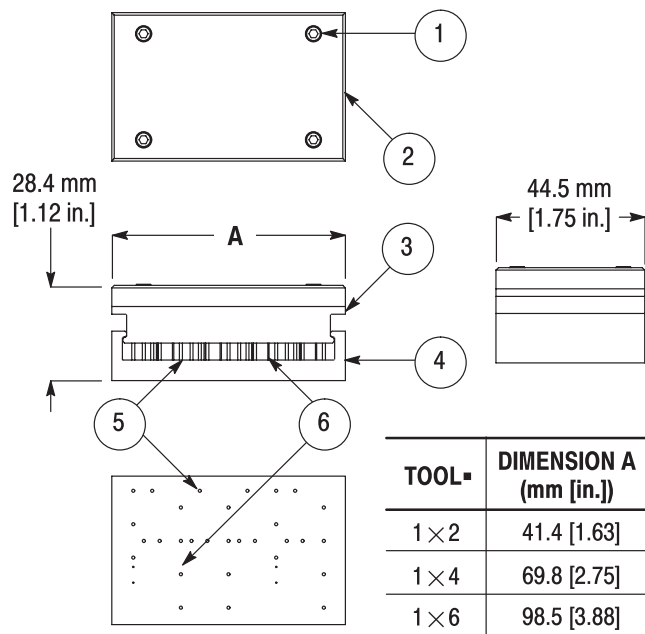
Customer-replaceable parts are listed in Figure 4.

A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. Parts other than those listed should be replaced by Tyco Electronics Corporation to ensure quality and reliability. Order replacement parts through your representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (038-035)  
 TYCO ELECTRONICS CORPORATION  
 PO BOX 3608  
 HARRISBURG PA 17105-3608

**7. REVISION SUMMARY**

- Initial release of instruction sheet



TOOL	DIMENSION A (mm [in.])
1x2	41.4 [1.63]
1x4	69.8 [2.75]
1x6	98.5 [3.88]

■ By Cage Assembly Configuration

**REPLACEMENT PARTS**

ITEM	PART NUMBER			DESCRIPTION	QTY PER TOOL
	1976584-1	1976597-1	1976920-1		
1	1-21000-3	1-21000-8	1-21000-8	SCREW, Socket Head Cap 4-40 x .250 in.	4
2	1976583-1	1976598-1	1976599-1	PLATE, Pin Retainer	1
3	1976582-1	1976595-1	1976596-1	HOLDER, Push Pin	1
4	1976581-1	1976594-1	1976921-1	GUIDE, Push Pin	1
5	1901636-1	—	—	PUSH PIN, .035-in. Diameter	30
6	1901634-1	—	—	PUSH PIN, .015-in. Diameter	16
	—	1976596-1	—	PUSH PIN, .032-in. Diameter	67
	—	—	1976596-1	PUSH PIN, .032-in. Diameter	25

Figure 4