

NOTE

All numerical values are in metric units. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ± 0.13 and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of the AMP* Electronic Control Unit Series 1 (ECU-1) Plug Connectors and Header Assemblies which provide high density input/output connections for Ford's** Enhanced Electronic Engine Control Module Series V (EECV).

The connector system is sealed and is only available in a 104 contact cavity position. For applications of less than 104 circuits, selectively block unused plug circuits by using the appropriate plug part numbers. Right angle header assemblies provide 90° printed circuit (pc) board connections. The plug connector and header assemblies are keyed to prevent mismatching and the socket contacts are positively locked into the plug using a true position spacer assuring proper seating. Wire shields are available for end exit, vertical exit, T-shaped, side open box, end left, and end right wire dressing.

When corresponding with Tyco personnel, use the terminology provided in this specification to facilitate your inquiry for information. Basic terms and features of components are provided in Figure 1.

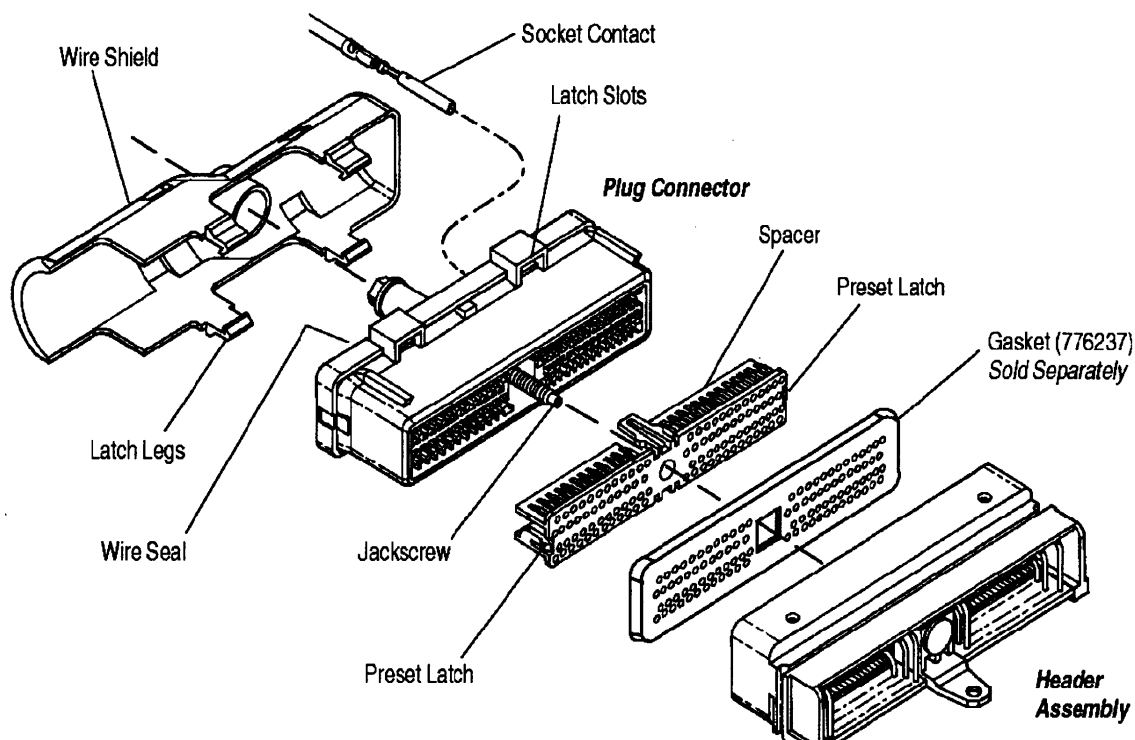


Figure 1

2. REFERENCE MATERIALS**2.1. Revision Summary**

Per EC 0990-1334-00:

- Changed gasket part number in Figure 1
- Changed pc board dimensions in Figure 8

2.2. Customer Assistance

Reference Part Number 770760 and Product Code 2154 are representative numbers that identify the Electronic Control Unit Connector product line. These numbers are used in the customer service network to access tooling and product application information. This service is provided by your local Tyco representative (Field Sales Engineer, Field Application Engineer, etc.) or, after purchase, by calling the Tooling Assistance Center number at the bottom of page 1.

2.3. Drawings

Customer Drawings for specific products are available from the print room of Ford Motor Company in Dearborn, Michigan. The information contained in the Ford Motor Company Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by Tyco Electronics.

2.4. Instructional Material

Application specification 114-6071 covers the application requirements for the ECU-1 1mm socket contact used in the ECU-1 plug connector system.

3. REQUIREMENTS

3.1. Special Consideration

Connector base part numbers 770760, 776144, 776201, 776202, 776219, 776220, 776222, 776224, 776245, and 776332 will seal properly to 18 and 20 AWG, ESB-M1L123-A wire. Connector base part numbers 776092 and 776303 will seal properly to 18 and 20 AWG, WSB-M1L134-A1 and WSS-M1L135-A1

3.2. Assembly Procedure

CAUTION Seal cover must not be removed or altered in any way.

CAUTION The back of the connector must be completely sealed. A variety of connectors are available with seal covers that have selectively blocked contact cavities. Those cavities that are not blocked must contain a contact crimped to a wire.

NOTE Contact retention fingers will not engage if contact assemblies are inserted into plug housing cavity while the plug spacer is in the closed position.

Check to be sure the plug spacer is in the **open**, or as-shipped, position (see Figure 2). Then, proceed as follows:

1. To insert a contact, push it straight into the appropriate circuit cavity as far as it will go (see Figure 2).
2. Pull back on the contact wire with a force of 8.9 to 13.3 N [2 to 3 lbs] to be sure the retention finger is holding the contact.

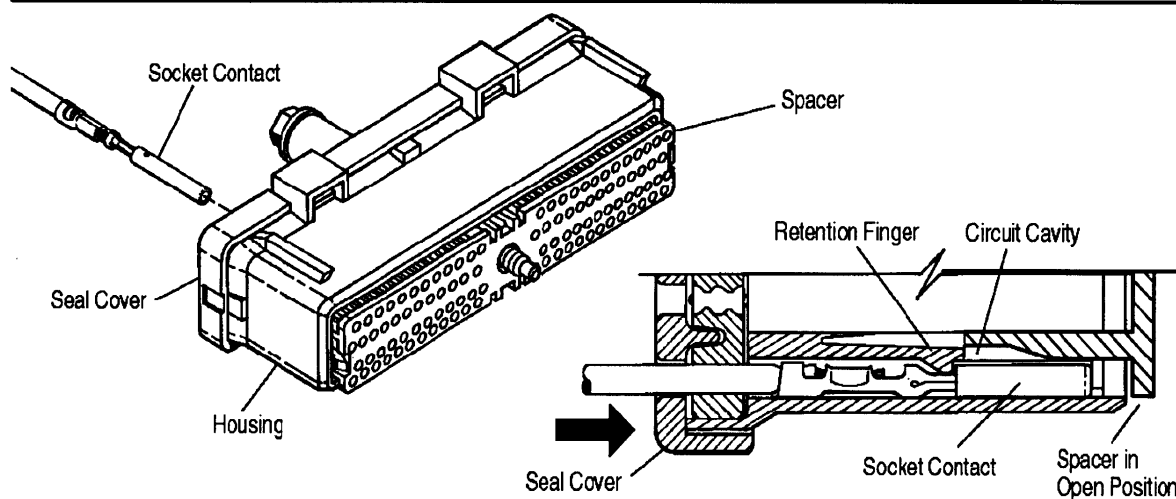


Figure 2

3. After all required contacts have been inserted, the spacer must be closed to its **locked** position. Release the locking latches by squeezing them inward and slide spacer forward until it is flush with the housing plug assembly (see Figure 3).

NOTE The spacer should seat with a force of 56 N [12.5 lbs] maximum. If spacer does not seat, verify that all contacts are fully inserted.

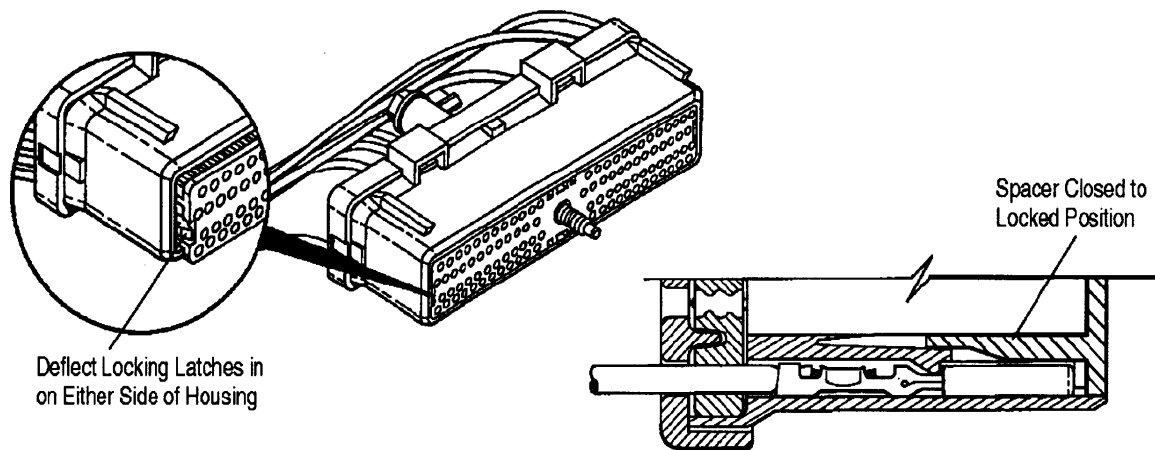


Figure 3

4. Assemble wire shield and dress wires as shown in Figure 4.

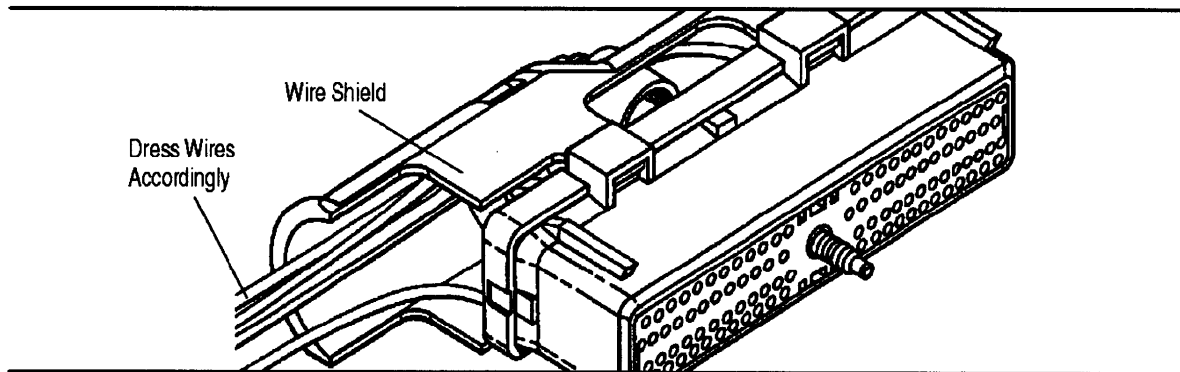


Figure 4

3.3. Disassembly Procedure

Refer to Figure 5 and proceed as follows:

1. Remove shield wire cover by releasing the four latch legs from the latch slots of the plug housing. See Figure 5.

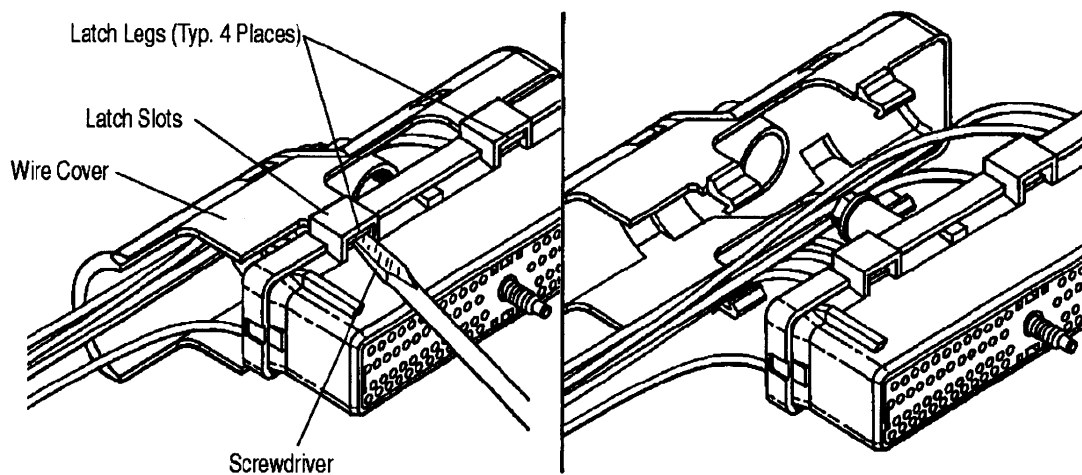


Figure 5

2. Insert a modified 3.18 mm flat blade screwdriver or hooked tool into opening on either side of jackscrew. Rotate tool 90° and pull spacer straight out from the plug housing. See Figure 6.

CAUTION

Do not pry against the wall of the ECU housing, as damage to the connector sealing system could occur.

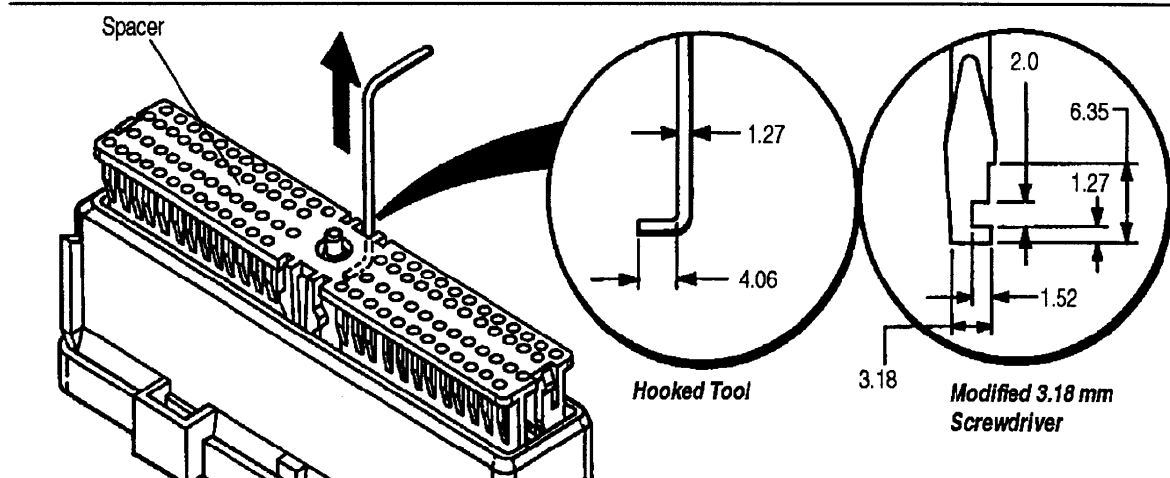


Figure 6

3. Insert a 1.4 mm screwdriver into contact cavity and deflect retention finger holding contact. Gently pull the wire until the contact is free from the housing. Repeat this procedure for the remaining number of contacts to be removed as shown Figure 7.

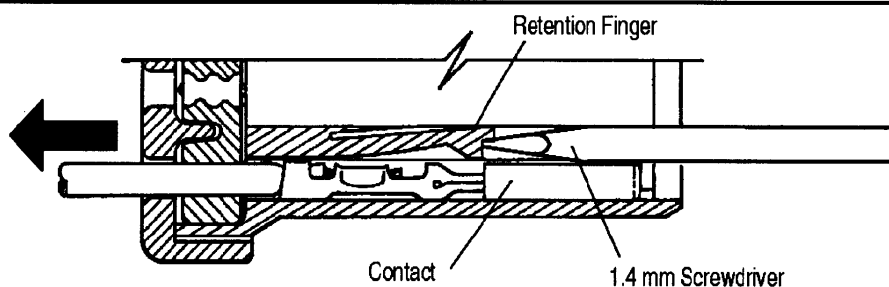


Figure 7

3.4. Spacer

The spacer has a hole pattern in the mating end. These holes accommodate circuit test probes that are up to 1.55 mm in diameter, which will prevent damage to the socket contact. The test probes should contact the outer sleeve of the sockets, but never enter the sleeve and touch the contact beams. Recommended probe design shown in Figure 9.

3.5. Reading Voltage During Service

CAUTION

Do NOT pierce wire insulation to take voltage readings.

It has been common practice in electrical troubleshooting to probe wires by piercing the insulation with a sharp point. This practice must be strongly discouraged when dealing with the ECU-1 plug assembly, or any other sealed connector system. The resulting pinholes in the insulation will allow moisture to invade the system by traveling along the wire strands. This nullifies the effectiveness of the connector seals and could result in system failure. For recommended continuity probe tip design, see Figure 9.

3.6. Header Assembly Printed Circuit (PC) Board Requirements

The pc board layout must be precisely located to ensure proper placement and optimum performance. Design the pc board using the dimensions provided on the customer drawing. The pc board thickness shall be 1.57 mm. The 104-position connector pc board layout is shown in Figure 8 for reference only.



6. VISUAL AID (Figure 10)

The following illustration is to be used by production personnel to ensure properly applied product. The views suggest requirements for good applications. Applications considered visually incorrect should be inspected using the information in the main body of this document.

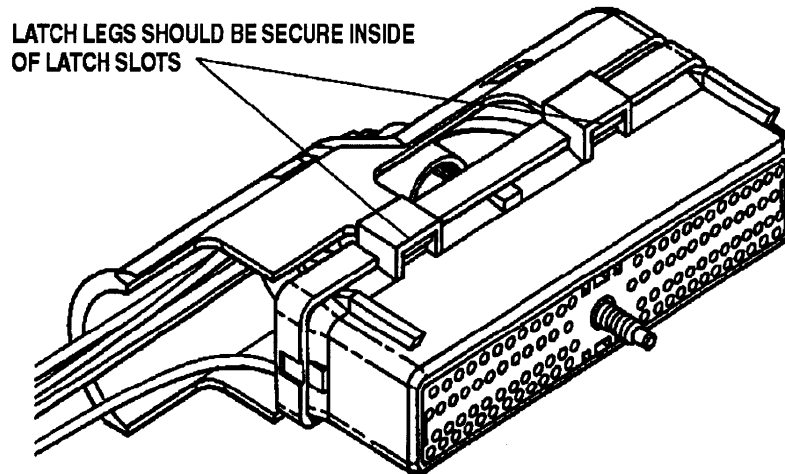


FIGURE 10. VISUAL AID