***NOTE***

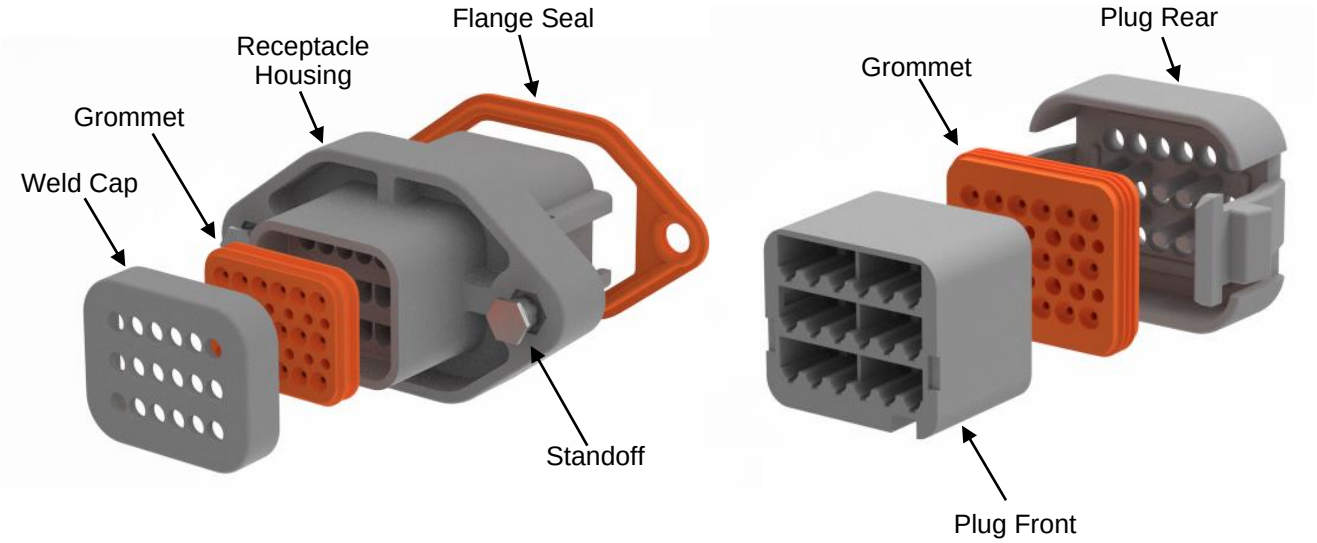
*All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of ±0.13 [±.005] and angles have a tolerance of ±2°. Figures and illustrations are for identification only and are not drawn to scale.*

## 1. INTRODUCTION

This specification covers the requirements for application of DEUTSCH DTV series connector system. The system features a plug and receptacle that offers an 18-pin arrangement which accept DEUTSCH size 16 solid (machined) or stamped & formed contacts.

The plug and receptacle each consist of a housing and secondary wedge lock. The secondary wedge lock is used to ensure that the contact is fully seated and secure in the connector. The connector and the secondary wedge lock are shipped separately. These connectors feature integral key style mating. The 18-pin arrangement features integral keying and is color-coded.

Basic terms and features of this product are provided below. Pages 2 through 10 provide examples of additional features and modifications.




Standard Features All Arrangements
(18-pin example)
Available in Gray, Black, Green,
Brown colors

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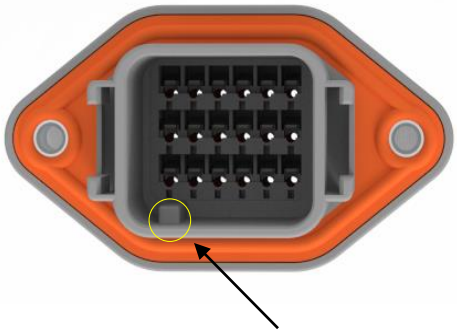
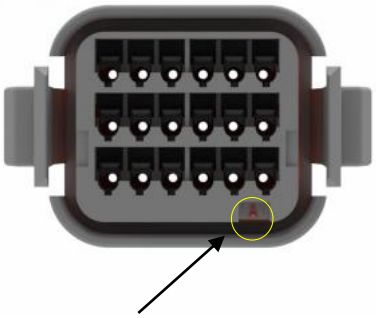
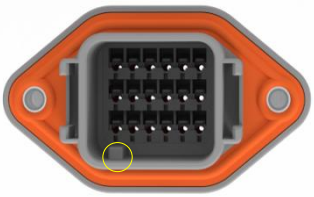
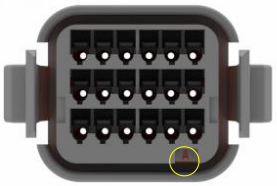




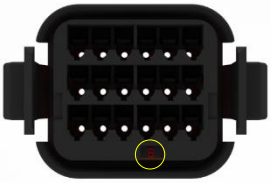
Keys
18pin Feature

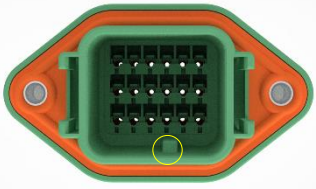


A Key
(Grey)

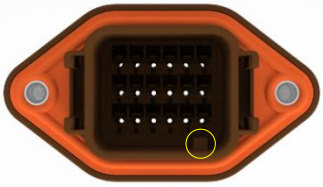


B Key
(Black)

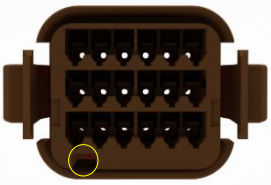




C Key
(Green)



D Key
(Brown)



## 1.1. Receptacle

18 Pin

Standard Receptacle, No Flange
A Key

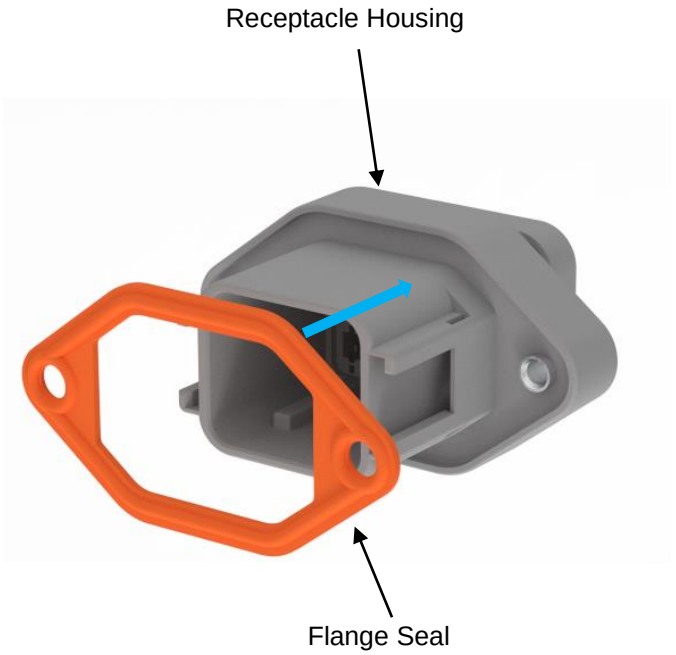
## 1.2. Plug

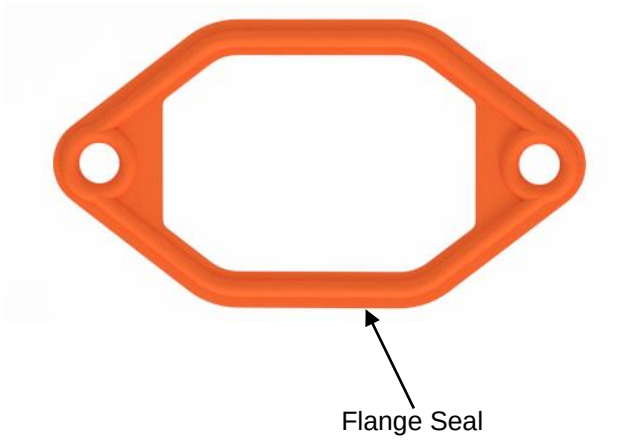
*18 Pin*

Standard Plug, No Modifications
A Key

### 1.3. Receptacle Flange Seal Replacement

The flange seal must be present and properly seated prior to use. If the flange seal has fallen off during transportation, locate it in the box and re-install the seal, as shown below. If the seal cannot be located, please contact TE for replacement seals. Standard flange seal shown below only for reference.






| Flange Seal | Pin Arrangement |
|---|---|
| 1010-082-1806 | 18P |

### 1.4. Product Dimensions

See connector and wedge product drawing for product dimensions. See section 2.3.

## 2. REFERENCE MATERIAL

### 2.1. Revision Summary

See section 8.

### 2.2. Customer Assistance

Reference Product Base Part Numbers DTV06-18SX (receptacles), and DTV02-18PX (plugs) (X = A to D keys) and Product Code J41 are representative of DEUTSCH DTV series connector system. Use of these numbers will identify the product line and help you to obtain product and tooling information when visiting www.te.com or calling the number at the bottom of page 1.

### 2.3. Drawings

Customer drawings for product part numbers are available from www.te.com. Information contained in the customer drawing takes priority. X refers to A, B, C, D keys; XXXX refers to product modification.

CONNECTORS

| Product Drawing | Description |
|---|---|
| DTV02-18PX-XXXX | 18 Pin Receptacle, Flanged |
| DTV06-18SX-XXXX | 18 Pin Plug |

WEDGE LOCKS

| Product Drawing | Description |
|---|---|
| WV-18P-XXXX | 18 pin Rcpt Wedge Lock |
| WV-18S-XXXX | 18 pin Plug Wedge Lock |

*Note:*
*X = A, B, C, D Key*
*XXXX = Modification. See section 3.3H*

### 2.4. Specifications

108-151013 DTV Series Product Specification

114-151000 Application Specification for DEUTSCH Size 16 S&F Pin & Socket

114-151001 Application Specification for DEUTSCH Size 16 S&F Pin & Socket

114-151004 Application Specification for DEUTSCH Size 4-20 Solid Pin & Socket

408-151008 Removal Tool DT-RT1 for Front-Release Connectors

108-151000 DEUTSCH S&F Contacts

108-151004 DEUTSCH Solid Contacts

### 2.5. Instructional Material

Instruction sheets (408-series) provide product assembly instructions or tooling setup, and operation procedures and customer manuals (409-series) provide machine setup and operating procedures. Instructional material that pertains to this product are:

408-151008 DEUTSCH Removal Tool DT-RT1 for Front-Release Connectors

## 3. REQUIREMENTS

### 3.1. Safety

Do not stack product shipping containers so high that the containers buckle or deform.

### 3.2. Storage

#### A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the product material.

#### B. Shelf Life

The product should remain in the shipping containers until ready for use to prevent deformation to components. The product should be used on a first in, first out basis to avoid storage deterioration which could adversely affect performance.

#### C. Chemical Exposure

Do not store products near any chemical listed below as they may cause stress corrosion cracking in the material.

Alkalis Ammonia Citrates Phosphates Sulfur Compounds
Acids Amines Carbonates Nitrites Sulfur Nitrites Tartrates

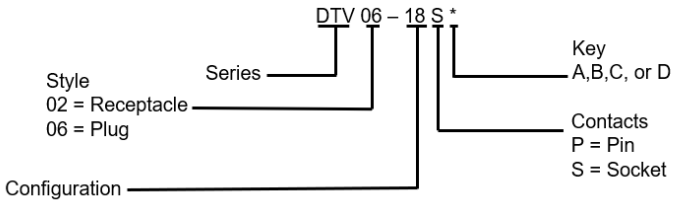
*NOTE*
*Resistance depends on chemical concentration, temperature, and exposure medium.*

## 3.3. Characteristics

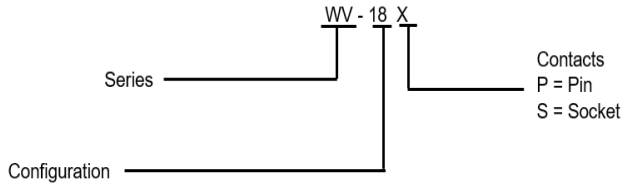
### A. Part Numbering System

DTV Family Connector Configurations

CONNECTOR



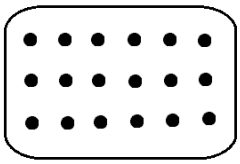

WEDGELOCK




*Note:*
*Pins are used in receptacles; Sockets are used in plugs.*

### B. Pin Arrangement

See product drawing for contact cavity marking.



18Pin Arrangement

### C. Materials

| | |
|---|---|
| Receptacle and Plug Housings: | PA66 GF15 (gray, black, green, brown) |
| Caps: | PA66 GF15 (black) |
| Flanges: | PA66 GF15 (Red) |
| Wedge Locks: | PBT GF30 (green) |
| Front Seal: | VMQ (red orange), FVMQ (Blue) |
| Grommets: | VMQ (standard seal red-orange, E-seal burnt red) |
| Threaded Inserts: | Stainless Steel |

### D. Wedge Locks

Wedge Lock PN's sold separately but are required for DTV functionality.

**Receptacle Wedge Locks**

| PN | Description | Shape and Color | |
|---|---|---|---|
| **WV-18P** | **Wedgelock for 18 pin receptacles** | | **Green** |

**Plug Wedge Locks**

| PN | Description | Shape and Color | |
|---|---|---|---|
| **WV-18S** | **Wedgelock for 18 pin plugs** | | **Green** |

## E. Sealing Range

| Conductor Range | Insulation OD Sealing Range in [mm] | Seal Type |
|---|---|---|
| 14-20 AWG [2.0-0.5mm²] | .088-.145 [2.23-3.68] | N-Seal |
| | .053-.120 [1.35-3.05] | E-Seal |

## F. Sealing Plugs

Open cavities provide pathways for contamination to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.

| Part Number | Material | Color | Description | Sealing Plug |
|---|---|---|---|---|
| 114017 | PBT | White | N-Seal<br>E-Seal | |

## G. Keying Pins

Keying pins are solid plastic rods used to prevent mis-mating of like connectors in close proximity. Keying pins are inserted into the retention fingers of an empty socket cavity (in plug connectors only.) Once installed, the keying pin blocks a mating contact pin from being inserted. The contact pin will be blocked before the latch device mates the connectors, helping to prevent the mis-mating of like connectors. Proper usage requires that the corresponding mating pin be omitted, and a sealing plug be inserted in the rear cavity of the mating connector. Individual applications will vary, and testing should be done to determine the best arrangement to help prevent improper connector mating.

| Part Number | Material | Color | Description | Sealing Plug |
|---|---|---|---|---|
| 0413-215-1605 | PBT | White | Keying<br>N-Seal<br>E-Seal | |
| 0413-217-1605 | PBT | White | Locking<br>N-Seal<br>E-Seal | |
| 0413-003-1605 | PBT | Blue | Locking<br>N-Seal<br>E-Seal | |

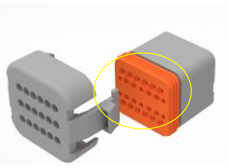
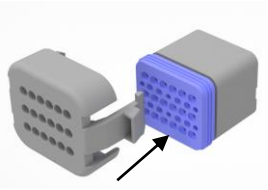
*Note:*
*Multiple keying pins may be required to help prevent unintentional forced mating.*

## H. Modification

Note:
*Modifications include, but are not limited to, the following list.*
*The modifications listed are for reference only and may not be available for every arrangement.*

| Mod | Description |
|---|---|
| C015 | E Seal Reduced |
| C032 | Cavities Blocked |
| P055 | No Inserts |
| C043 | Grommet Change |

## Common Modifications

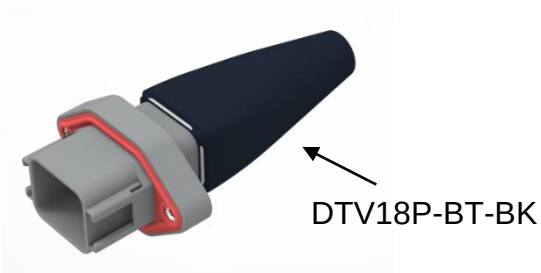
| Modification | Description | Receptacle | Plug |
|---|---|---|---|
| C015 | Reduced diameter seals (E-Seals) DT Seals - Smaller Seals for NAVISTAR | | |
| C032 | DTV18P with block cavities (7-12) (*Weld cap removed in receptacle image; plug rear removed in plug image) | |  |
| P055 | DTV02-18P* without M5 threaded insert | | |
| C043 | Blue grommet for DTV06-18SX for DTNA (RTS 1184877) (*plug rear removed in plug image) | |  |

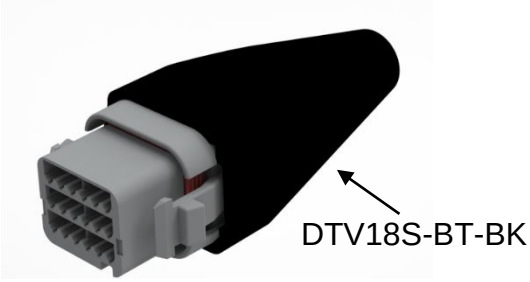
## I. Accessories

Several accessory items can be used to complement the connectors such as PVC boots, plastic backshells, neoprene closed cell gaskets, protective dust caps and mounting clips. Accessories are designed to complete the application and meet a wide array of design requirements such as solutions for mounting, providing additional protection, and offering increased aesthetics.

### BOOTS

Slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray and pressure washing.




| Part Number Receptacle | Description |
|---|---|
| DTV18P-BT-BK | 18pin, Blk |

| Part Number Plug | Description |
|---|---|
| DTV18S-BT-BK | 18pin, Blk |

Material: PVC

Operating temperature is -29ºC to +100ºC [-20º to +212ºF].

*Note:*
*Boots are received with the end closed. Cut end of boot off to desired length.*

### 3.4. Contact Insertion

1. The crimped contact must meet these specifications:

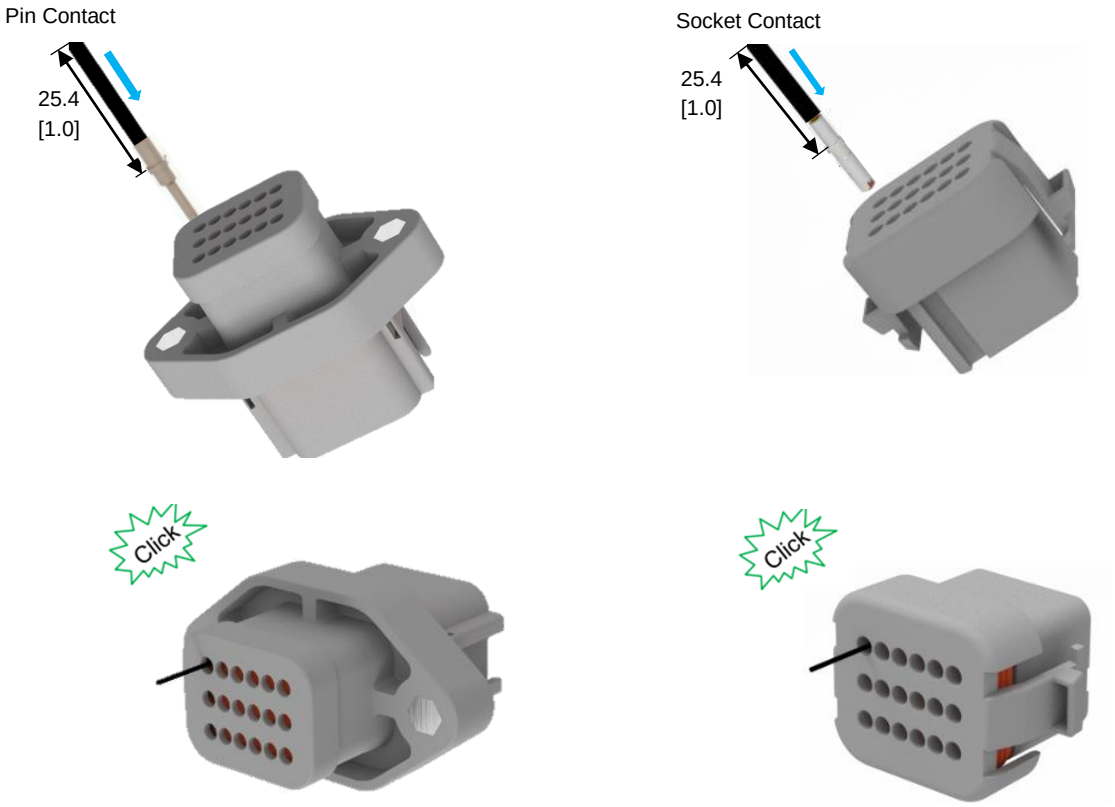
114-151000 DEUTSCH size 16 S&F contacts

114-151001 DEUTSCH size 16 S&F contacts

108-151004 DEUTSCH solid contacts

2. Grasp crimped contact approximately 25.4 [1.0] behind the contact crimp barrel and hold the connector with grommet facing you.

3. Push contact straight into grommet until positive stop is felt. The contact will lock into place. A slight tug on wire will confirm that it is properly locked in place.




*Note:*
*1. Pins are used in receptacles; Sockets are used in plugs.*
*2. Wire insulation outside diameter must meet connector wire sealing range per section 3.3.E.]*
*3. Insertion tool, M15570-16 (size 16) may be needed for ≤20 AWG wire.*
*4. Front seal must be present and properly seated prior to contact insertion.*

4. Once all the contacts are in place, insert the wedge lock until it snaps into place. For the receptacle, the DT-RT1 or small, long nose pliers may be used to assist in locking into place. For the plug, wedge lock may be locked in place by hand.

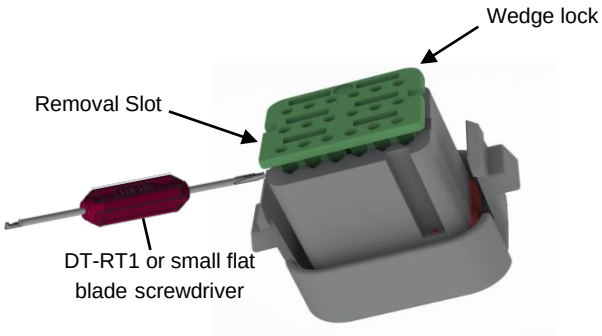
*Caution:*
*Do not twist or insert the insertion tool at angle; otherwise, damage to the cavity retention finger(s) will result.*

### 3.5. Contact Removal

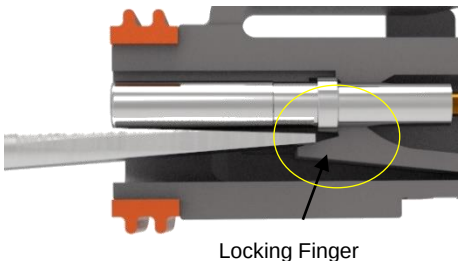
DEUTSCH **DT-RT1** multi-use tool has a small hook on one end for wedge lock removal and a small screwdriver on the other end to push back the locking fingers and release the contact. The tool is designed to extract individual DEUTSCH solid and stamp and formed (S&F) pin and socket contacts from front-release connectors. See 408-151008 for more information.

### A. Removing Socket Contact

1. Slide the screwdriver tip of removal tool under the wedge lock, and by evenly lifting it, remove the wedge from the connector.



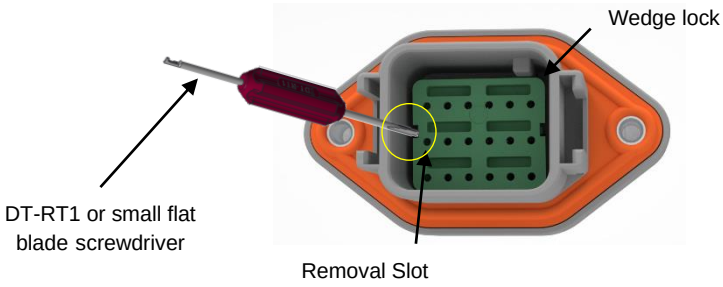

2. Insert the screwdriver tip of the removal tool into the contact cavity of the contact to be removed to release the locking finger.



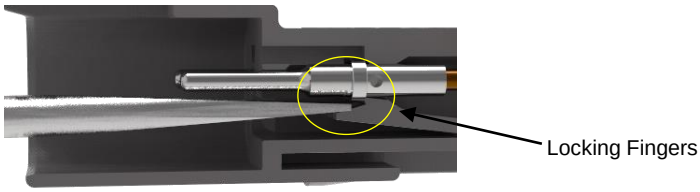

3. Pull the wire until the contact is removed.

## B. Removing Pin Contact

1. Insert the hook tip of the DT-RT1 or equivalent in the wedge removal slot, grasp the wedge lock, then pull wedge straight out of the connector.




2. Insert the screwdriver tip of the DT-RT1 or equivalent into the contact cavity of the contact to be removed to release the locking finger.




3. Pull the wire until the contact is removed.

### 3.6. Sealing Plug, Locking Sealing Plug and Keying Pin Installation and Removal.

**Sealing Plug**

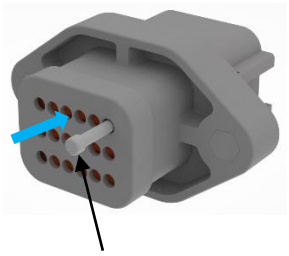
Installation: 408-151066

Step 1:

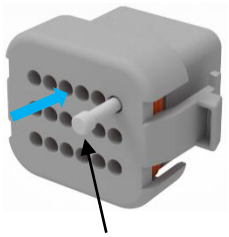
Holding the sealing plug with large diameter end away from the connector, gently apply downward pressure to force the sealing plug into the cavity.

Step 2:

With perpendicular motion, apply downward pressure to the large diameter end of the sealing plug.



Large diameter end

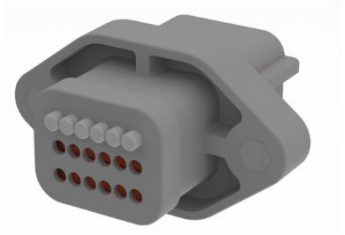


Large diameter end

*Note:*
*The large diameter end must be flush with cavity opening. Do not push all the way through.*

Step 3:

Apply pressure until the sealing plug is forced to stop by contact with cap. Visually inspect the sealing plug large diameter end to confirm it is flush with cavity opening. When flush, this indicates the sealing plug is properly seated and functioning as intended, making full contact with the welding cap or rear plug.



Receptacle

Plug

Step 4:

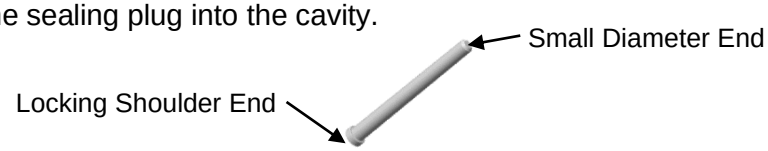
To remove the sealing plug from connector, grasp the large diameter end with fingers or small, long nose pliers and pull until sealing plug is removed.

## Locking Sealing Plug

Installation: 408-151066

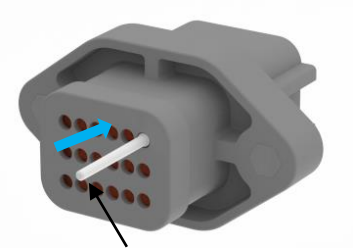
Step 1:

Holding the sealing plug with locking shoulder end towards the connector, gently apply downward pressure to force the sealing plug into the cavity.




Step 2:

With perpendicular motion, apply downward pressure to the small diameter end of the sealing plug.

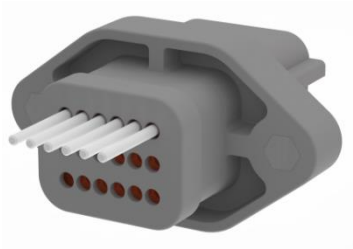


Small Diameter End

Small Diameter End

Step 3:

Apply pressure until the sealing plug is forced to stop by contact with rear grommet. Visually inspect the sealing plug to confirm it is flush with cavity opening.



Receptacle

Plug

## Keying Pin

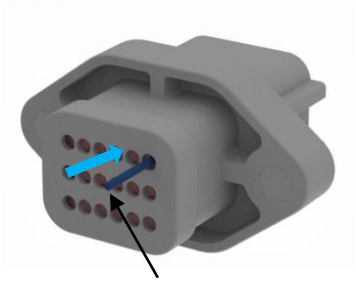
Installation: 408-151066

Step 1:

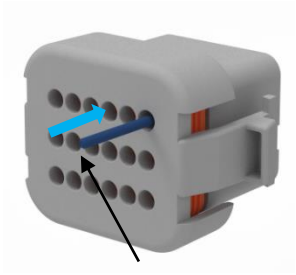
Holding the keying pin with large diameter end towards the connector, gently apply downward pressure to force the sealing plug into the cavity.

Step 2:

With perpendicular motion, apply downward pressure to the small diameter end of the keying pin.



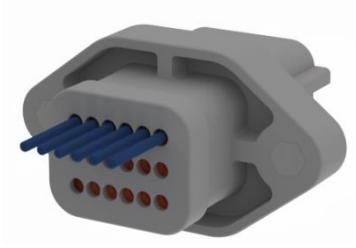
Small Diameter End



Small Diameter End

Step 3:

Apply pressure until keying pin locks into place. A slight tug on the keying pin will confirm it is locked into place.



Receptacle

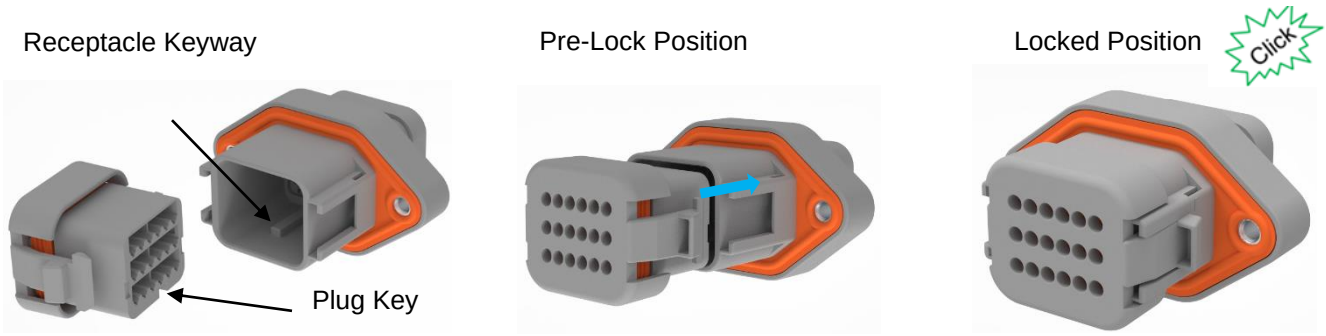
Plug

Step 4:

To remove the keying pin from connector, first release the locking finger similar to step 2 of contact removal. Then, grasp the end of the keying pin with fingers or small, long nose pliers and pull until it is removed.

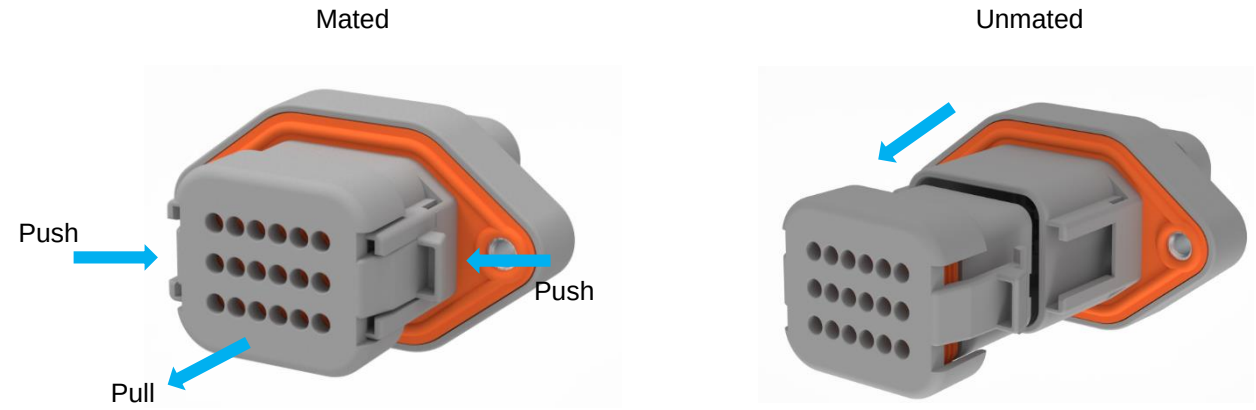
### 3.7. Connector Mating

To mate the plug and receptacle, first make sure both plug and receptacle are same key (i.e. A, B, C, D) next align the plug keys with the receptacle keyways. Then push plug into the receptacle until there is an audible and tactile click. Verify both plug latches are in full latched position.




### 3.8. Connector Unmating

To unmate the plug from the receptacle, push the plug latch(es) until a hard stop is felt. Pull the plug from the receptacle until they are fully separated.

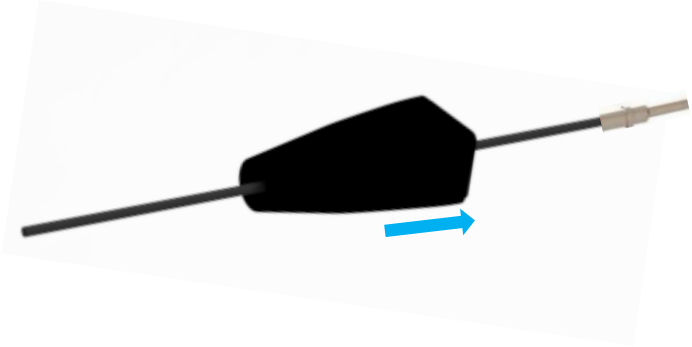


### 3.9. Boot Installation and Removal

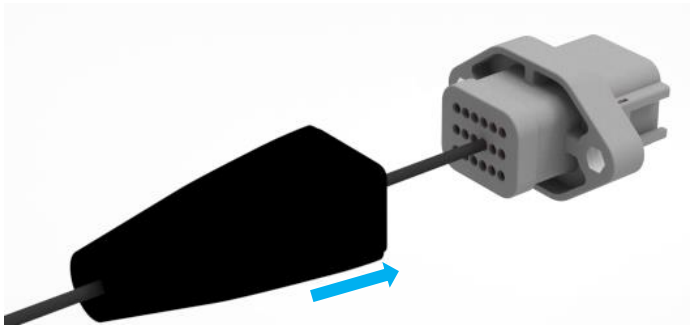
See section I for part numbers.

**BOOT**

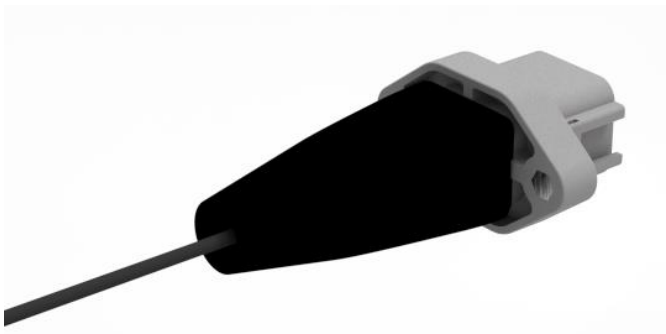
Step 1. Slide the boot over the wires.



Step 2. Insert the wires into the connector.



Step 3. Slide boot down the wires and onto the connector.



Step 4. If needed, attach a tie wrap on the end of the connector and boot. Trim tie wrap as needed.

*Note:*
*Do not put excessive stress on the boot to prevent boot from coming off connector.*

### 3.10. Replacement and Repair

Damaged or defective connectors must not be used. These connectors cannot be repaired.

## 4. QUALIFICATION

Refer to product specification 108-151013 for qualification and approved agency.

## 5. TOOLING

Refer to the following application specifications for reference on all pin and socket contact termination tooling.

114-151000, DEUTSCH Size 16 S&F

114-151001, DEUTSCH Size 16 S&F

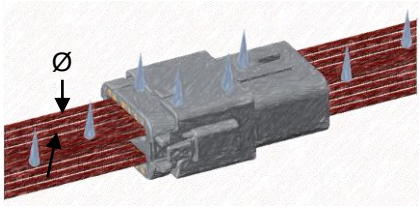
108-151004, DEUTSCH Size 4-20 Solid

The DT-RT1 removal tool is designed to remove secondary wedge locks and contacts from the connectors.

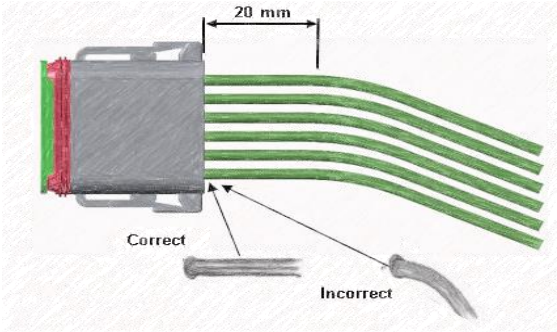
DEUTSCH Removal Tool DT-RT1 for Front-Release Connectors (408-151008)

## 6. HELPFUL HINTS

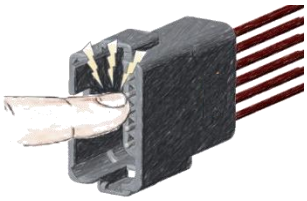
**Helpful hint**
Proper wire outside diameters help provide watertight seals. See Section 3.3.E for sealing ranges.



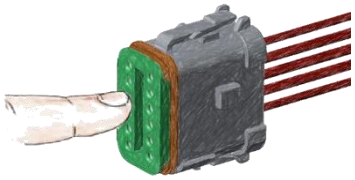

**Helpful hint**
Proper wire routing assures watertight seal performance. Keep wire straight for 20 mm minimum recommended unless a plastic backshell is used.




**Helpful hint**
Making the socket contact side the “hot side” can reduce the danger of electric shock.

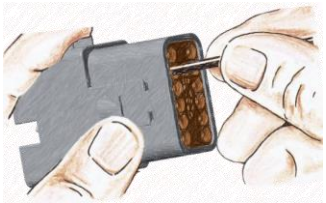


Incorrect

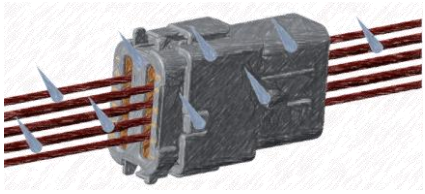


Correct

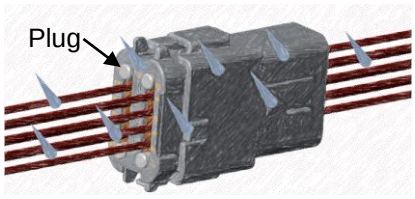
**Helpful hint**
Pulling lightly on the wire after it snapped in place will assure the contact is locked.



**Helpful hint**
Sealing plugs are used to seal the connector when all the cavities are not used by wires.

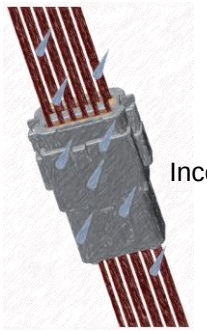


Incorrect

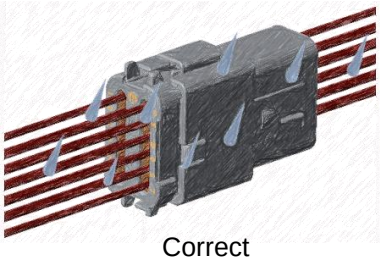



Correct

**Helpful hint**
Mounting connectors Horizontally allows proper water drainage.

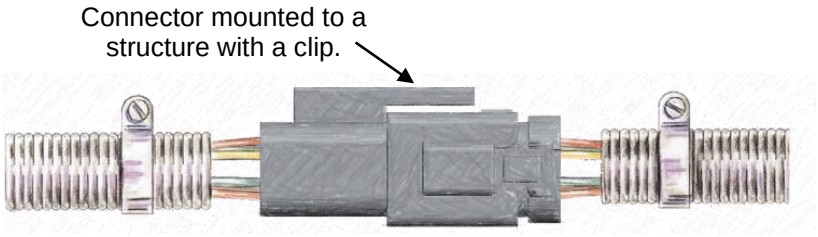


Incorrect

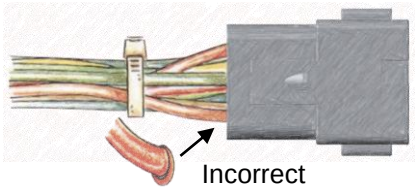


Correct

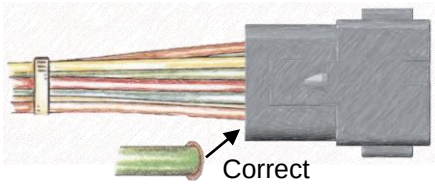
**Helpful hint**
Attaching the connector to a structure eliminates straining the electrical system in service.




**Helpful hint**
Tie wraps and tape away from the rear of the connector will allow the wire to be sealed properly.



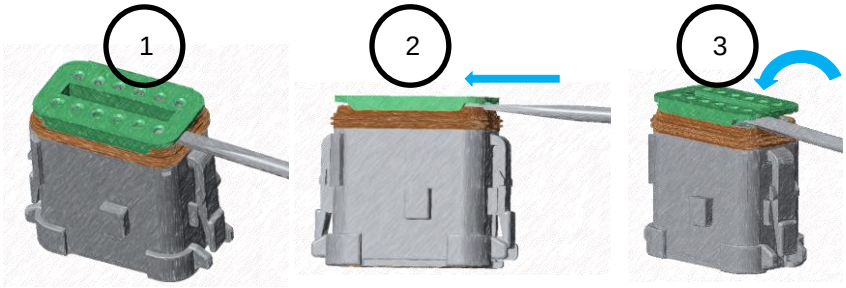
Incorrect



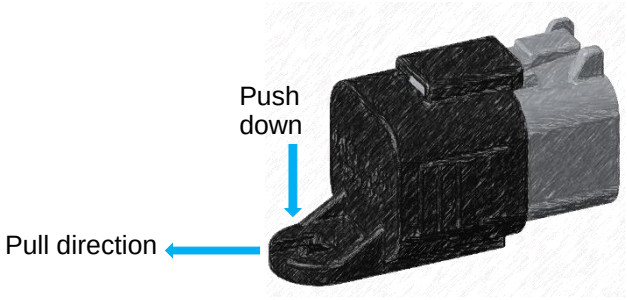
Correct

**Helpful hint**
When using a housing with the DEUTSCH logo, the middle line of text on the housings can be either “USA”, “IPD-USA”, “INDUSTRIAL”, or blank.

**Helpful hint**
For plugs, use DT-RT1 or small flat screwdriver to gently remove the wedge. (1) Insert screwdriver between wedge and housing, (2) continue to push screwdriver until wedge comes loose, (3) twist screwdriver if necessary to loosen wedge. Take care not to damage the seal.

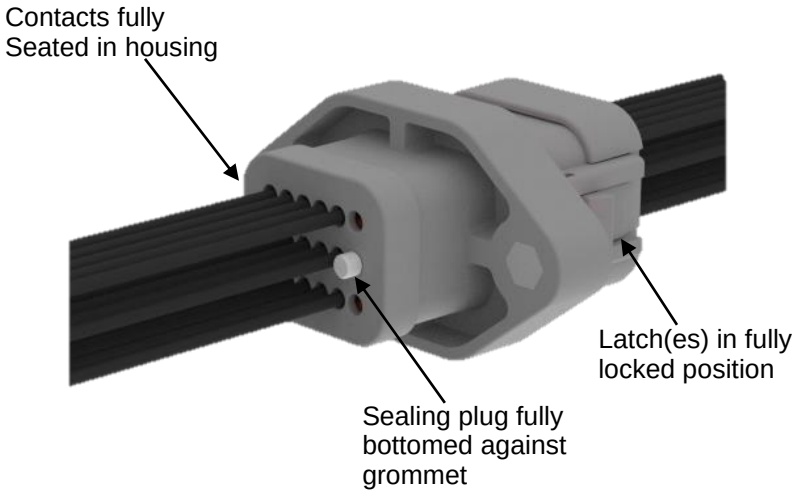



**Helpful hint**
For plugs, when removing the plastic dust caps, push down on the flange while pulling the cap off to help with un-mating.



## 7. VISUAL AID

Below shows a typical application of the DTV Series Connector. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instruction, material shipped with the product or tooling.



## 8. REVISION HISTORY

| Rev Ltr | Brief Description of Change | Date | Dwn | Apvd |
|---|---|---|---|---|
| A | New Document Release | 08/15/2018 | DB | RA |