

4 WAY SEALED CONNECTOR (MCON 9.5 / MCON 1.2)

Contents

1	General	2
1.1	Purpose	2
1.2	Customer Drawing	2
2	Product description	3
2.1	Description of components	3
2.1.1	4-Way Sealed connector(ePump)	4
2.1.2	4-Way Tab Housing Assy	5
2.1.3	Sealed Contacts Systems MCON9.5/ MCON 1.2	6
2.1.4	Wire Dress Cover for ePump 180° and 60° Ver sions	7
3	Application of the 4 WAY SEALED CONNECTOR	8
3.1	Loading receptacle housing with contacts (PN 2332470)	8
3.1.1	Optimize assembly process receptacle housing with contacts	9
3.2	Locking Terminal Position Assurance (ISL) from receptacle housing	10
3.3	Loading Tab Housing with Contacts	10
3.4	Locking Spacer (TPA) From Male housing	12
3.5	EWCAP 11 clip slot	13
3.6	Connecting receptacle and Interface	13
4	ePump preparation	14
4.1	ePump- connector versions	14
4.2	Preparation with lubricant	15
4.3	Pre-cycling for ePump	16
4.3.1	Pre-cycling procedure	16
4.3.2	Pre-cycling procedure (optional)	17
4.3.3	References	17
4.4	Assembly of Wire-Dress Covers for Water pump	18
4.4.1	Assembly of 180°Wire Dress Cover	18
4.4.2	Assembly of 60° Wire Dress Cover	21
5	Disassembly of the 4 WAY SEALED CONNECTOR	25
5.1	Unlock the CPA from Receptacle (Female) Housing	25
5.2	Unlocking the locking latch and disassembly of the connectors	25
5.3	Removing Wire Dress Covers from ePump Connector	26
5.4	Removing contacts	27
5.4.1	Unlock ISL from cavity of receptacle housing	27
5.4.2	Removing contacts from cavity of the receptacle housing (PN 2332470)	28
5.4.3	Removing contacts from cavity of Tab housing (PN 2286733)	.29
5.5	I ools for service	30



1 General

This application specification shows the following connector information:

- 4 WAY SEALED CONNECTOR (Water pump)
- 4 WAY TAB HOUSING ASSEMBLY

1.1 PURPOSE

This application specification includes the guidelines to be followed during assembly, installation and disassembly of the 4 WAY SEALED CONNECTOR. All explanations are for the base version parts with code A and all cavities open. Please check latest drawing for all available versions.

1.2 CUSTOMER DRAWING

The latest valid customer drawings shown below are for this guideline.

ТҮРЕ	NAME	Drawing No.		
CONNECTOR ASSEMBLY (ePUMP)	REC HOUSING 4POS ASSEMBLY, sealed	2332470		
TAB HOUSING ASSEMBLY (INLINE APPLICATION)	TAB HOUSING 4POS ASSEMBLY, sealed	2286733		
CONNECTOR INTERFACE	<i>4 WAY HYBRID SEALED INTERFACE</i>	114-94340		
Terminal overview				
Name & Type	Spec's	Tool		
MCON 1.2	108-18782 114-18464	J-38125-11A J-38125-12A		
MCON 9.5	108-94540 114-94423	J-38125-11A J-38125-12A		
Tools for Service				
Name	Application			
J-38125-11A	Terminal Release tool for MCON 1.2			
J-38125-12A	Terminal Release tool for MCON 9.5			
J-38125-558	Locking Tool for Spacer (ISL)			
726531-1	Release tool for ISL & Spacer			
For additional / optional use				
Name	Application			
Rheotemp 768G (NYE Lubricants)	Lubricant			

Table 1 For correct part number please check drawing.



2 PRODUCT DESCRIPTION

2.1 DESCRIPTION OF COMPONENTS

Assembled ePump Connector



Fig 1

Components e-Pump Connector





2.1.1 4 WAY SEALED CONNECTOR (EPUMP)

The following is an overview of the functional elements. The information shown on the valid TE customer drawing has priority and should be referenced.

The connector features include: Seal, ISL, CPA, and a receptacle housing with cavities for MCON terminals.





2.1.2 4 WAY TAB HOUSING ASSEMBLY

The connector (*PN 2286733*) features a spacer (TPA), and a socket housing with cavities for 1.2 & 9.5 male terminals.



Fig.6; 7; 8 TAB HOUSING 4POS ASSEMBLY (PN 2286733)



2.1.3 SEALED CONTACT SYSTEMS MCON9.5 / MCON1.2

MCON 1.2 sealing class S3 (*Fig.7*) (*PN 7-1452665, PN 7-1452668 & PN 7-1452671*) Wire Range 0.35mm²-1.0mm²





MCON 9.5 sealing class S3 (*Fig.9*)(*PN 1563844 & PN 1563845*) Wire Range 4mm²-16mm²



Fig.10

Fig.9; 10 MCON CONTACT SYSTEMS



2.1.4 WIRE DRESS COVER FOR EPUMP

Wire-Dress Cover 180°- Version (Fig. 17)



Fig.11

Wire-Dress Cover 60°- Version (Fig. 12)



Fig.12



3 APPLICATION OF THE 4 WAY SEALED CONNECTOR

The following procedure assumes that the contacts, in accordance with TE customer drawing, have been properly crimped. For the MCON contacts, please refer to the Specifications listed in Table 1.



DO NOT push the contact into the contact cavity with forces if a hard stop is detected. If there is resistance, pull the contact out, ensure proper orientation, and re-insert the contact.

3.1 LOADING RECEPTACLE HOUSING WITH CONTACTS (PN 2332470)

Make sure that the ISL is in open position per Fig 58. If it is not, open the ISL according to Paragraph 5.4.1



Fig.13

Fig.14

Fig.13; 14

ORIENTATION FEATURE ON MCON 9.5 RECEPTACLE TERMINAL





The contact cavities are designed with a polarization feature to prevent the contacts being inserted upside- down. According to the TE customer drawing, the MCON 1.2 and 9.5 receptacle contacts must be oriented and inserted into the cavity, until the steel spring engages. That ensures the contact is locked properly.

The contacts produce an audible click (see *Fig.18; 19*). Complete locking of the terminals can be verified by gently pulling back on the contact.





3.1.1 OPTIMIZE ASSEMBLY PROCESS RECEPTACLE HOUSING WITH CONTACTS (PN 2332470)

The Single Wire Seal for the MCON 9.5 contact system is made of a non-self-lubricating silicone resin. To optimize the terminal insertion process, an application of a Lubricant (Table 1) can be considered.



Fig.20

Permitted area to apply lubrication, to reduce friction between wire sealing and housing cavity







3.2 LOCKING INDEPENDENT SECONDARY LOCK (ISL) TO RECEPTACLE HOUSING (PN 2332470)

After loading of the receptacle housing with contacts, the ISL must be closed via the opening from the prestaged position (Fig. 22) to the end-locked position (Fig. 23;).



Fig. 22

3.3 LOADING TAB HOUSING WITH CONTACTS

The MCON 9.5 male terminal is not designed with an extra polarization feature, which allows the terminal to be inserted in two directions, 180° apart. The blad e has two forward stops (Fig.24) which helps provide the initial orientation. The terminals must be oriented and inserted into the contact cavity until they hit these forward stops. The terminals will be locked by an audible click.

The MCON 1.2 male contact cavities are polarized to prevent the contacts from being inserted in the wrong direction (Fig.26). The terminals must be oriented properly and inserted into the cavity and pushed until they are locked. When the terminals lock into place, there is an audible click.





Fig.26



Fig.26 ORIENTATION FEATURE ON MCON 1.2 TAB TERMINAL



3.4 LOCKING SPACER (TPA) FROM MALE HOUSING

After loading of the male housing with contacts, the TPA must be closed from the pre- locked position (*Fig.27*) to the end- locked position (*Fig.28*). For this operation, a standard tool J-38125-558 can be used (or small flat blade screwdriver). Place the tool flat against the coding rib and then push the spacer to the final end-locked position. It is only necessary to push on one side to lock the entire TPA. The TPA is in the end position if both surfaces of the housing and TPA are even. As a final check of the position it is possible to push on different areas of the TPA to make sure it is closed.



Fig.27

Fig.27; 28

LOCKING OF THE SPACER



3.5 EWCAP 11 CLIP SLOT

The housings within this specification support vehicle attachment with an EWCAP 11 mm clip slot (Fig.29). Below view shows an example of the inline connector with a clip slot on female housing. This can be used to mount the inline connection to the vehicle.



3.6 CONNECTING RECEPTACLE TO INTERFACE

To create a correct connection please ensure the following points:

- 1. The polarization ribs are orientated correctly before the housings are pushed together.
- 2. CPA is in the pre-lock position (delivery status).
- 3. The ISL in the receptacle housing is in the locked position (*Fig. 23*).
- 4. The spacer in the tab housing is in the locked position (Fig. 28)

Interface and housing should be positioned and orientated before assembling (*Fig.30*). Then they can be pressed together until fully locked. The correctly assembled connector set will result in an audible click (Fig.31).









Fig.30 HOUSING AND INTERFACE BEFORE ASSEMBLING Fig.31 HOUSING AND INTERFACE AFTER ASSEMBLING



If interface and housing are correctly assembled as described before (*Fig.30; 31*), the CPA can then be closed from pre-locked position to the locked position (*Fig.32; 33*).

CPA in pre-lock position



Fig.32

4 EPUMP- PREPARATION

This chapter will explain the preparation for new ePump connectors and gives an overview about the versions and references

4.1 EPUMP CONNECTOR VERSIONS

TE-No. 1-2332470-1

TE-No. 0-2332470-1



Fig. 34 Shore 50 version with Silicon parts in natural color



Fig. 35 Shore 30 version with Silicon parts in orange color



4.2 PREPARATION WITH LUBRICANT

Please apply Lubricant Rheotemp 768G as shown





Fig. 36a



View shows as an example shore 30 version with Nye 768G applied on cavities (1-3) and front silicone part (4)



For protection a plastic bag should be added over greased connector during handling and shipment.



PRE-CYCLING FOR EPUMP 4.3

The shown procedure is mandatory for version 1-2332470-1

4.3.1 **PRE-CYCLING PROCEDURE**

Perform one-time pre-cycling with interface for connector-version 1-2332470-1





4.3.2 PRE-CYCLING PROCEDURE(OPTIONAL)

Perform one-time pre-cycling with interface for connector-version 1-2332470-1 with optional procedure.

- 1. Choose interface 114-94537 for pre-cycling procedure (Fig.37e)
- 2. Perform one-time pre-cycling with the interface. The connector needs to be fully mated before disengagement (Fig. 37)
 3. Apply Lubricant as shown in 4.2 (Fig. 37a/b)

4.3.3 REFERENCES:

TE drawingC-2332470Interface114-94340Pre-cycling interface114-94537*

* Pre-cycling interface is not a TE salable part. This drawing contains only information to build a pre-cycling interface



4.4 ASSEMBLY WIRE DRESS COVER FOR EPUMP

4.4.1 ASSEMBLY OF 180° WIRE DRESS COVER





Bring Cover-2 (PN 2301629) in position as shown (*Fig. 49*)



Locking Cover-1 with Cover-2 (Fig.42)





Please note: In this Condition, the two halfs of the Cover are still in pre-position (Fig. 42)



Press both Covers in position as shown (*Fig. 43*)





Check correct position of the Covers. The final position should look like shown in Fig. 43





4.4.2 ASSEMBLY OF 60° WIRE DRESS COVER







Push Cover-1 to end position as shown (*Fig.47*)



Please bring Cover-2 in correct position in Correct position as shown (PN 2310400) (*Fig. 48*)



Fig. 48



Locking Cover-2 with Cover-1 (Fig. 49)





Finally use a standard cable tie zip to fix both Cover shells together (*Fig. 51a-51d*)



Fig. 51a-51d FIX 60° WIRE DRESS COVER WITH CA BLE TIE



5 Disassembly of the 4 WAY SEALED CONNECTOR

5.1 Unlock the CPA from Housing

Before disassembling the connector, the CPA must be pushed to the pre-lock position (Fig. 53)



CPA in pre lock position



Fig. 53

Fig. 52 CPA IN LOCKED POSITION

Fig. 53 CPA IN PRE-LOCKED POSITION

5.2 UNLOCK THE LOCKING LATCH AND DISASSEMBLY OF THE CONNECTORS

If the CPA is in pre-lock position, the locking latch with CPA can be pressed downwards. With the CPA pressed down, the connectors can now be separated (*Fig. 54*) by pulling on both connector housings.



Fig. 54 PRESS LOCKING LATCH AND SEPARATE THE CONNECTOR



5.3 REMOVING WIRE DRESS COVERS FROM EPUMP CONNECTOR (PN 2332470)

Use a standard Screwdriver with a width of approximately 6mm and apply a leverage as shown (Fig.55a-55b)



Use a standard Screwdriver and apply a movement as shown (Fig.56a-56b)



Please do not re-use the disassembled Cover Components again (PN 2332470, 2310399, 2310400)



5.4 REMOVING CONTACTS

5.4.1 UNLOCK ISL FROM CAVITY OF THE RECEPTACLE HOUSING

If the terminals need to be removed from the connector, the first step is to unlock the ISL.

For the female housing (2332470) a tool with a hook similar to 726531-1 should be inserted into the gap between the ISL and housing (*Fig.57*). The hook of the tool needs to be inserted flat and turned to grab the ISL. If the hook of the tool is behind the ISL it can then be pulled open.



Fig.59 ISL IN LOCK POSITION (PN 2332470)

Fig.60 ISL IN PRE-LOCK POSITION (PN 2332470)



5.4.2 REMOVING CONTACTS FROM CAVITY OF THE RECEPTACLE HOUSING (PN 2332470)

To remove the terminals from either 2332470, a tool needs to be inserted into the slot of the selected cavity from the front side (Fig.61). Different tools maybe needed for MCON 9.5 and MCON 1.2 terminals (see table 1).



Fig. 61



Please be careful when removing the terminals!

Insert tool straight into the opening until the locking feature is detected (Fig.62a & 63a). Push carefully until the tool comes to a full stop (Fig.62b & 63b). The terminal can now be disengaged (Fig.62c & 63c) by pulling it out from the connector. If the terminal locking feature isn't fully disengaged the tool can be tilted slightly to release the terminal. If the terminal still can't be disengaged, please check to make sure the ISL has been released and is now in the pre-lock position. Fig.62 - 63 shows this operation done only with tool J-38125-11A for the 9.5 and terminals.

MCON 9.5



Fig. 62a

Fig. 62b

Fig. 62c





Fig. 63a







5.4.3 REMOVING CONTACTS FROM CAVITY OF THE TAB HOUSING (PN 2286733)

If terminals need to be removed from the tab housing, the first step is to open the spacer (TPA).

To service part number 2286733 a tool similar to 726531-1 with a hook needs to be inserted into the slot in the spacer (*Fig.64*). Once the tool is inserted it needs to be turned 90° degree and then pulled outward. Perform this operation again on the opposite side to fully un-lock the spacer. In some circumstances, it may be helpful to completely remove the spacer from the housing for better access to the terminal locking features.



To remove the terminals from the male connector (2286733) a tool needs to be inserted into the slot between the spacer and the housing from the front side (*Fig. 65a*). Different tools are needed for tab MCON 1.2cb J- 38125-12A (*Fig.65b*) and tab 9.5 J-38125-11A (*Fig.65c*).



Please be careful when removing the terminals

Insert the tool straight beneath the tab until the locking feature is detected (*Fig.65a-c*). Bend the tool to release the locking latch. The terminal can now be disengaged and removed from the connector.



5.5 TOOLS FOR SERVICE

The following tools are recommended for the service of these connectors and terminals and are referenced in each sequence. These are standard tools that should be readily available at all service locations and manufacturing locations for connector and terminal service. See also overview at page 2.



Fig. 66

Fig.66 TOOLS FOR SERVICE