NATO STANDARD

AEP-4074

AUXILIARY POWER UNIT CONNECTIONS FOR STARTING TACTICAL LAND VEHICLES

Edition A Version 1
SEPTEMBER 2017

NORTH ATLANTIC TREATY ORGANIZATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

14 September 2017

1. The enclosed Allied Engineering Publication AEP-4074, Edition A, Version 1, AUXILIARY POWER UNIT CONNECTIONS FOR STARTING TACTICAL LAND VEHICLES, which has been approved by the nations in the NATO Army Armaments Group, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 4074.

2. AEP-4074, Edition A, Version 1, is effective upon receipt.

3.

4. This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAŽEIKIS
Major General, LTUAF
Director, NATO Standardization Office

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
BEL	Belgium reserves the right to fit up its tactical vehicles only with type 2 connectors
CZE	The sockets are installed on tactical land vehicles procured after year 2003.
FRA	France cannot commit itself to implementing the last sentence of paragraph 2.1: “Nations also agree that new tactical land vehicles will use only Type 1 connectors.”
NOR	NOR reserves the right to equip tactical land vehicles with type 2 connectors when necessary
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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CHAPTER 1 AIM

1.1. The aim of this agreement is to standardize the dimensions and basic characteristics of the auxiliary power unit connections for starting tactical land vehicles in use in the armed forces of NATO.

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CHAPTER 2 AGREEMENT

2.1. The NATO armed forces agree to standardize the dimensions and basic characteristics of the auxiliary power unit connections for starting tactical land vehicles. Nations also agree that new tactical land vehicles will use only Type 1 connectors.

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CHAPTER 3 DEFINITION

3.1 The following definition is used for the purpose of this agreement:

Tactical Land Vehicle: A military vehicle, whether designed primarily for military use or adapted from a commercial vehicle, which has specialised military characteristics to fit it for use by forces in the field in direct connection with or in support of, combat operations or the training of troops for such operations.

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CHAPTER 4 APPLICATION

4.1 The present standard applies to the receptacle connectors (female) and corresponding plug connectors (male) and to the adaptor assemblies required for starting a vehicle having Type 1 receptacle connector installed and vice versa. The design of each NATO adaptor assembly is predicated on the fact that its operation requires the use of each specific nation's intervehicular slave cable having a plug connector installed on each end.

a. Dimensions. The interface dimensions of the receptacle connectors and the plug connector shall be in accordance with those shown in Annexes A and B in order to ensure one nation's intervehicular slave cable will mate with another nation's receptacle connectors of the same type. For complete interoperability, all toleranced dimensions must be followed.

b. Adaptors. The adaptor assemblies shall meet the requirements shown on Annex C as appropriate for the type of receptacle installed on a nation's vehicles. The final design used for the adaptors and their procurement are national responsibilities.

NOTES:

1. When vehicles with Type 1 connectors are used to start the vehicles with Type 2 connectors, nations should be aware that the Type 2 connectors could be damaged as they are only rated to take one half the current available from Type 1 connectors.

2. Figures 1 and 2 of Annexes A, B and C show the mechanical interface only; these receptacles must be earthed to suit individual National requirements.

c. Position. Only the receptacle connector (Figure 1 in Annexes A and B) provided with a support shall be fixed on the vehicles.

d. Determination for the polarity of the contacts

(1) The central pin of plugs and the central socket for Type 1 connectors as shown on Figures 1 and 2 of Annex A will constitute the positive pole of the connector.

(2) The positive and negative poles of connectors for Type 2 connectors are as shown on Figures 1 and 2 of Annex B.

e. Materials

(1) The metal parts of the plugs and sockets must be good conductors of electricity.

(2) The insulating material must be resistant to petroleum products.

(3) The other metal parts of the plugs and sockets must be treated to make them corrosion proof against salt spray.

f. Electrical characteristics for connectors (plug and receptacle type).

(1) TYPE 1

(a) Operating voltage: 24 volts

(b) Suggested cable size: AWG 00 - 67.3 mm2

(c) Current. continuous: Cable assemblies, and connectors shall be capable of carrying 500 amperes at 24 V DC for a period of 15 minutes continuous duty.

(d) Current. overload: Cable assemblies and connectors shall be capable of carrying a current of 1000 amperes at 24 V DC for a period of 360 seconds.

(e) Contact resistance: The voltage drop across the contacts of the mated connectors shall not be greater than 250 millivolts at 500 amperes DC.

(2) TYPE 2

(a) Operating voltage: 24 volts

(b) Suggested cable size: AWG 0 - 53.5 mm2

(c) Current. continuous: Cable assemblies and receptacles shall be capable of carrying 250 amperes at 24 V DC for a period of 15 minutes continuous duty.

(d) Current. overload: Cable assemblies and connectors shall be capable of carrying a current of 500 amperes at 24 V DC for a period of 360 seconds.

(e) Contact resistance: The voltage drop across the contacts of the mated connectors shall not be greater than 100 millivolts at 200 amperes DC.

g. Mating of Connectors: TYPES 1 AND 2. At an ambient temperature of 25 °C the forces required to fully engage and disengage the plugs with receptacles shall be between 90 and 180 newtons. When either the plug or receptacle is at -54 °C. the force shall be between 90 and 200 newtons.

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CHAPTER 5 IMPLEMENTATION

5. This standard is implemented when ratifying nations procure and design vehicles equipped with Auxiliary Power Unit Connections for starters, the dimensions and basic characteristics of which are as given in the standard.

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ANNEX A TO
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ANNEX A: Dimensions of Auxiliary Power Units, Receptacle and Plug of Type 1 Design

A.1. Dimensions of Auxiliary Power Units, Receptacle and Plug of Type 1 Design (based on British Drawing Numbers 634272 and FV 564833).

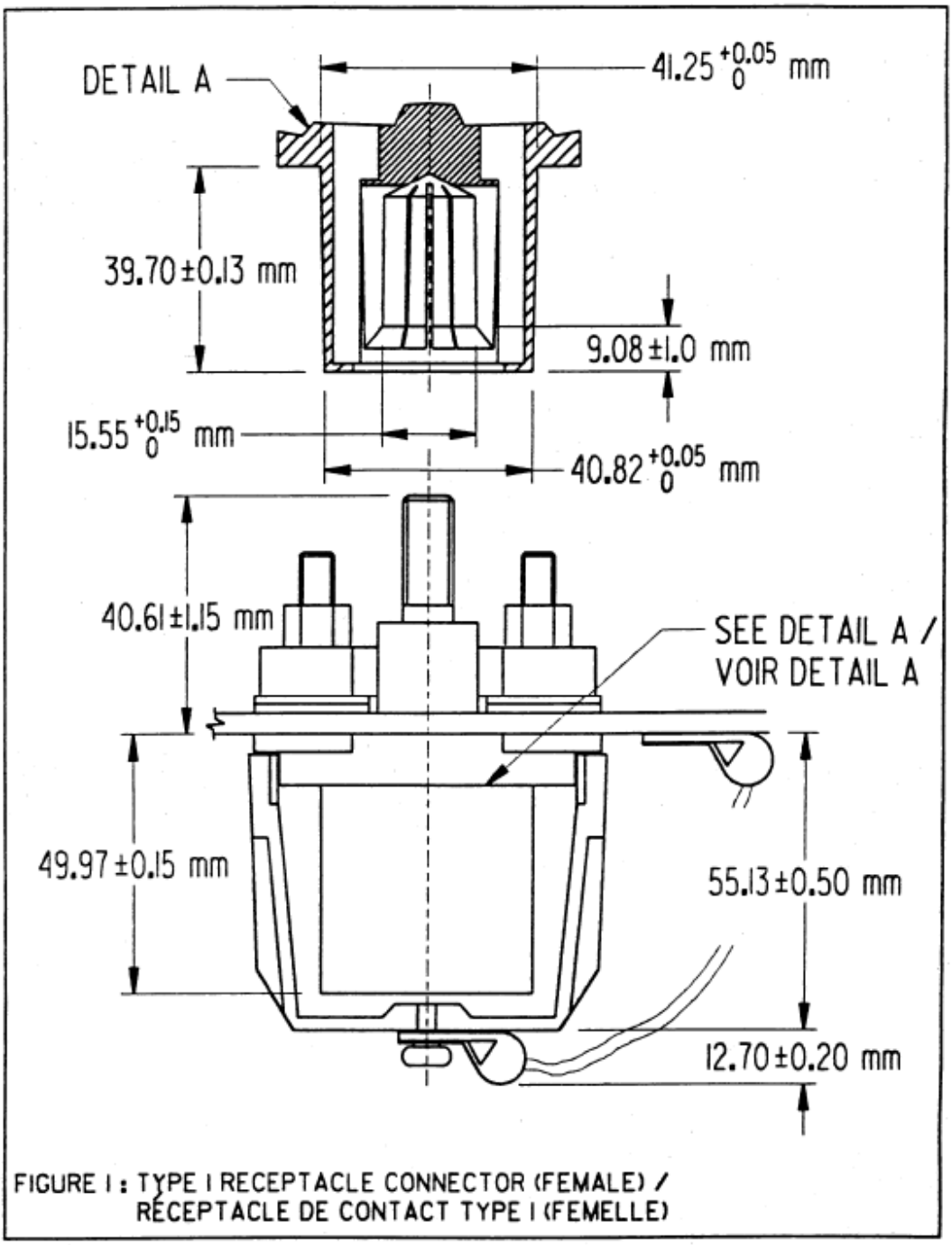

FIGURE 1 : TYPE 1 RECEPTACLE CONNECTOR (FEMALE) / RÉCEPTACLE DE CONTACT TYPE 1 (FEMELLE)

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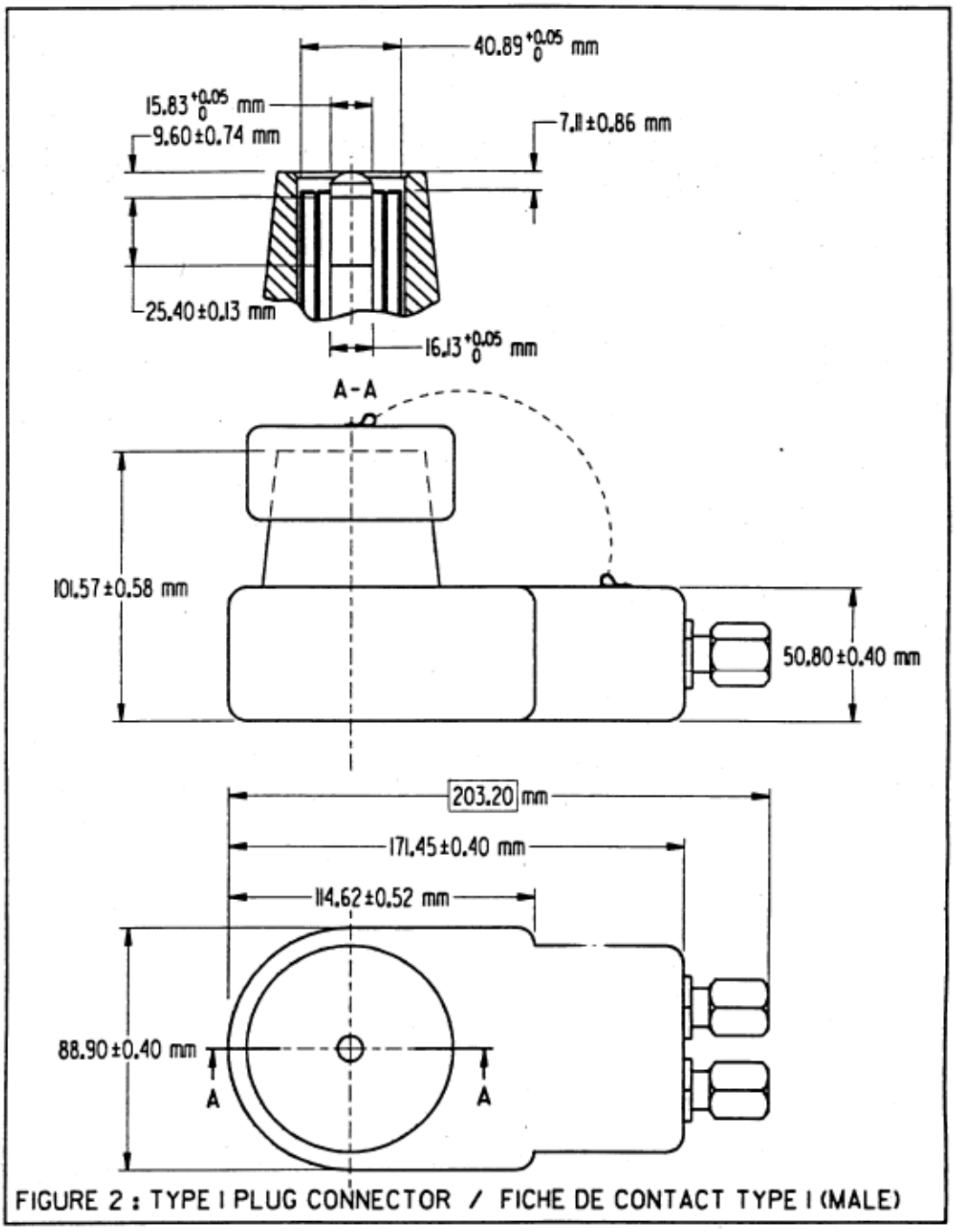

FIGURE 2 : TYPE I PLUG CONNECTOR / FICHE DE CONTACT TYPE I (MALE)

ANNEX B TO
AEP-4074

ANNEX B: Dimensions of Auxiliary Power Units, Receptacle and Plug of Type 2 Design (based on US Army Drawing Numbers 7321299 and 7728882).

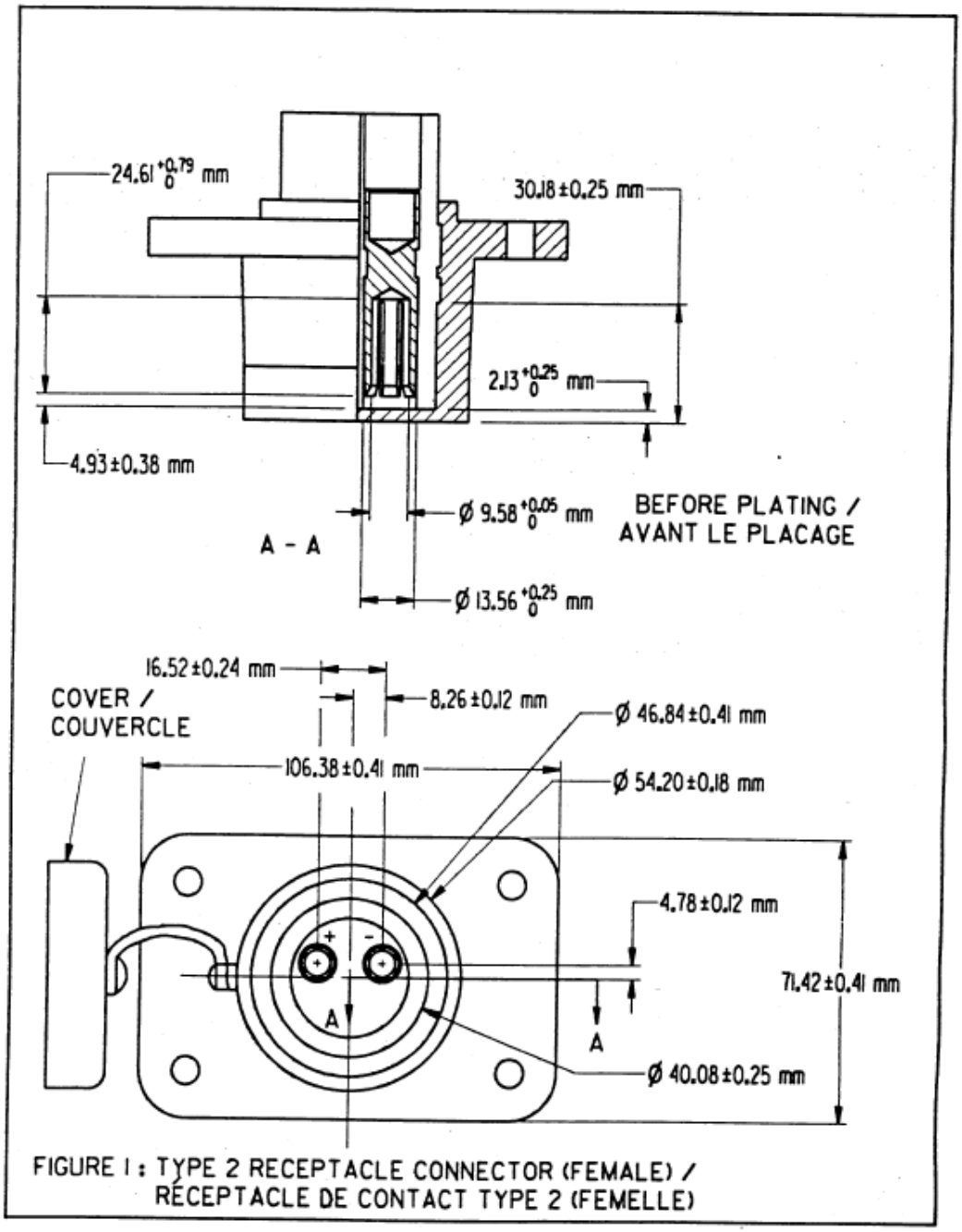

FIGURE 1 : TYPE 2 RECEPTACLE CONNECTOR (FEMALE) / RÉCEPTACLE DE CONTACT TYPE 2 (FEMELLE)

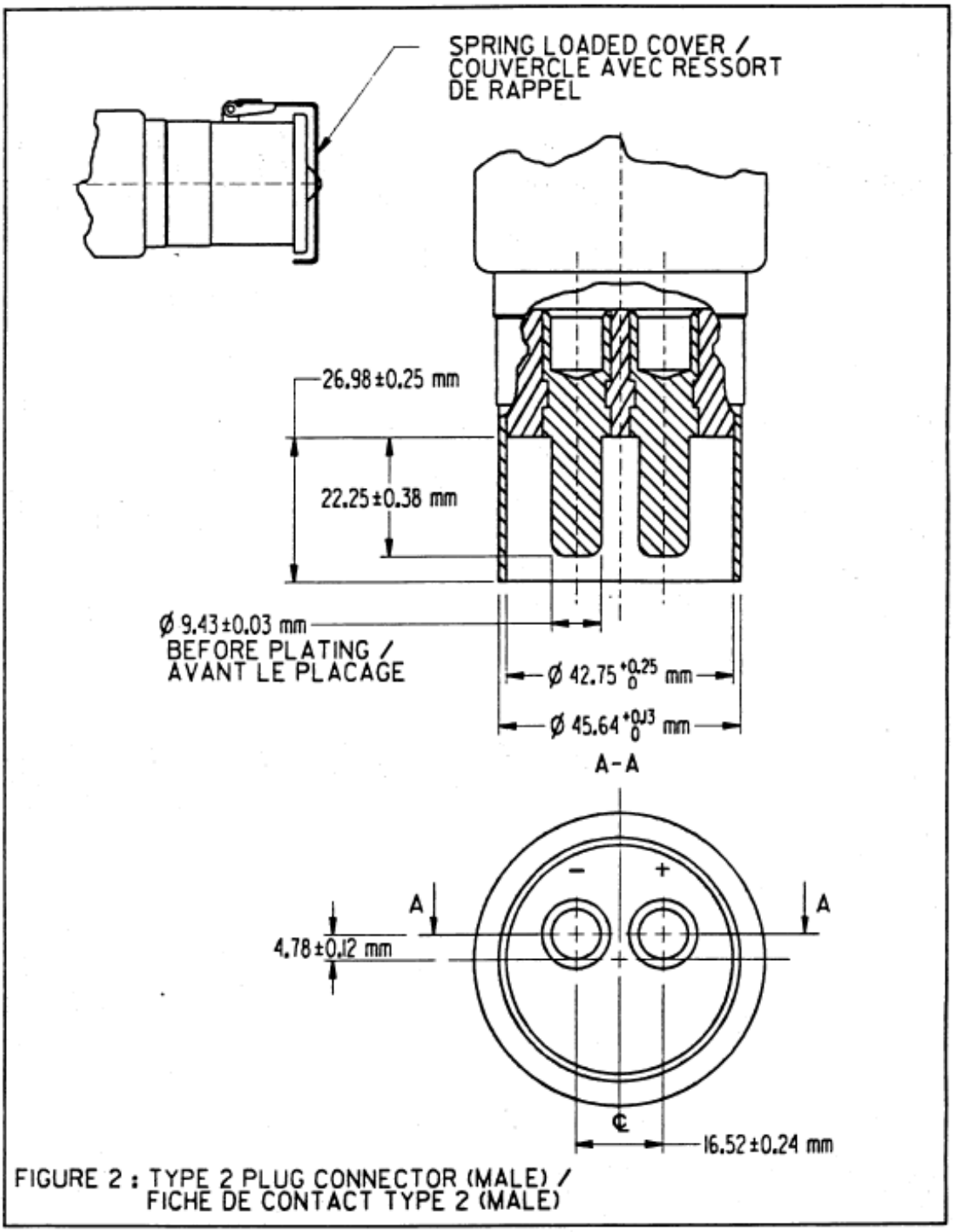

FIGURE 2 : TYPE 2 PLUG CONNECTOR (MALE) /
FICHE DE CONTACT TYPE 2 (MALE)

ANNEX C TO
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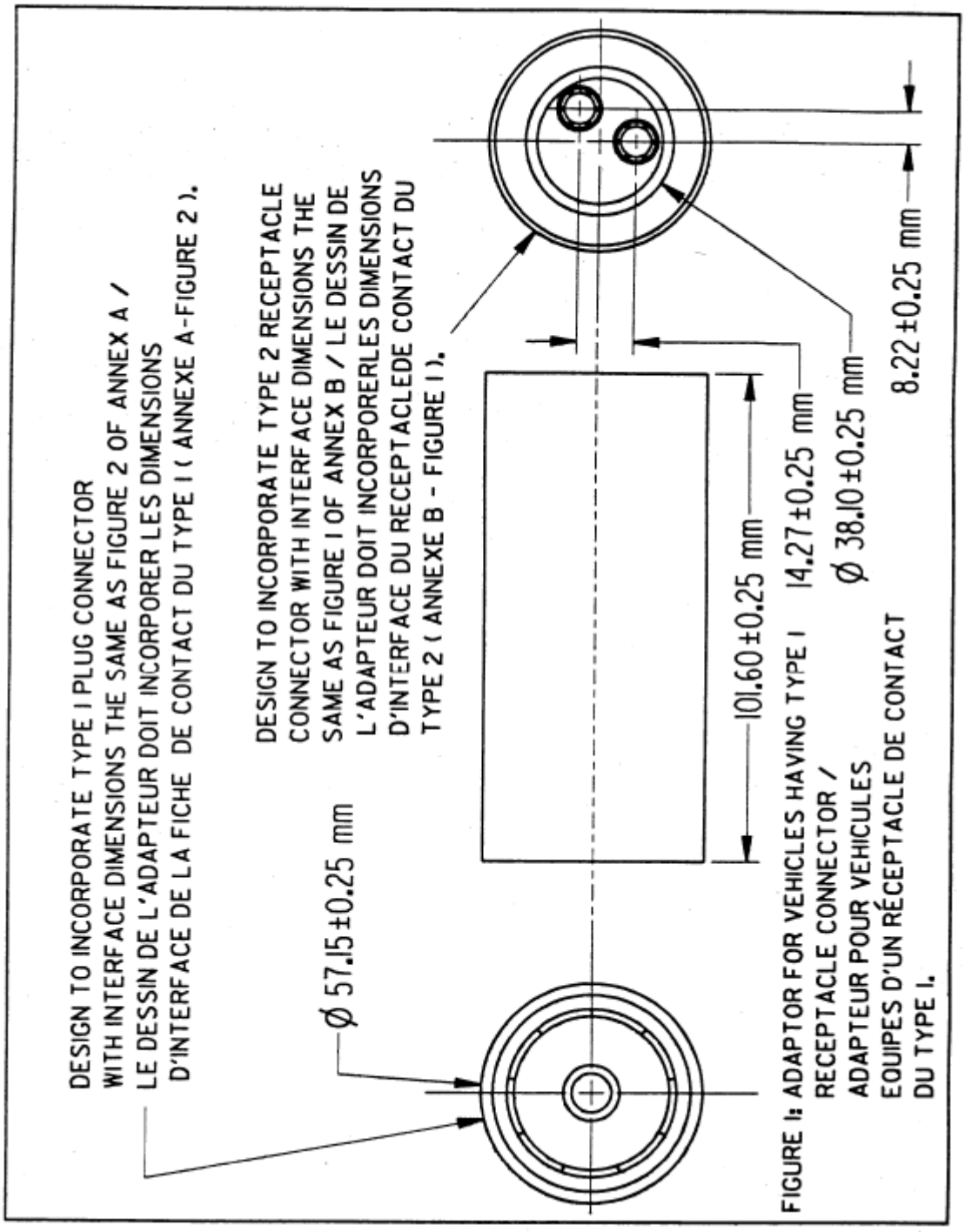
Annex C: Adaptor Assemblies for Vehicles fitted with a Type 1 or a Type 2 Receptacle Connector



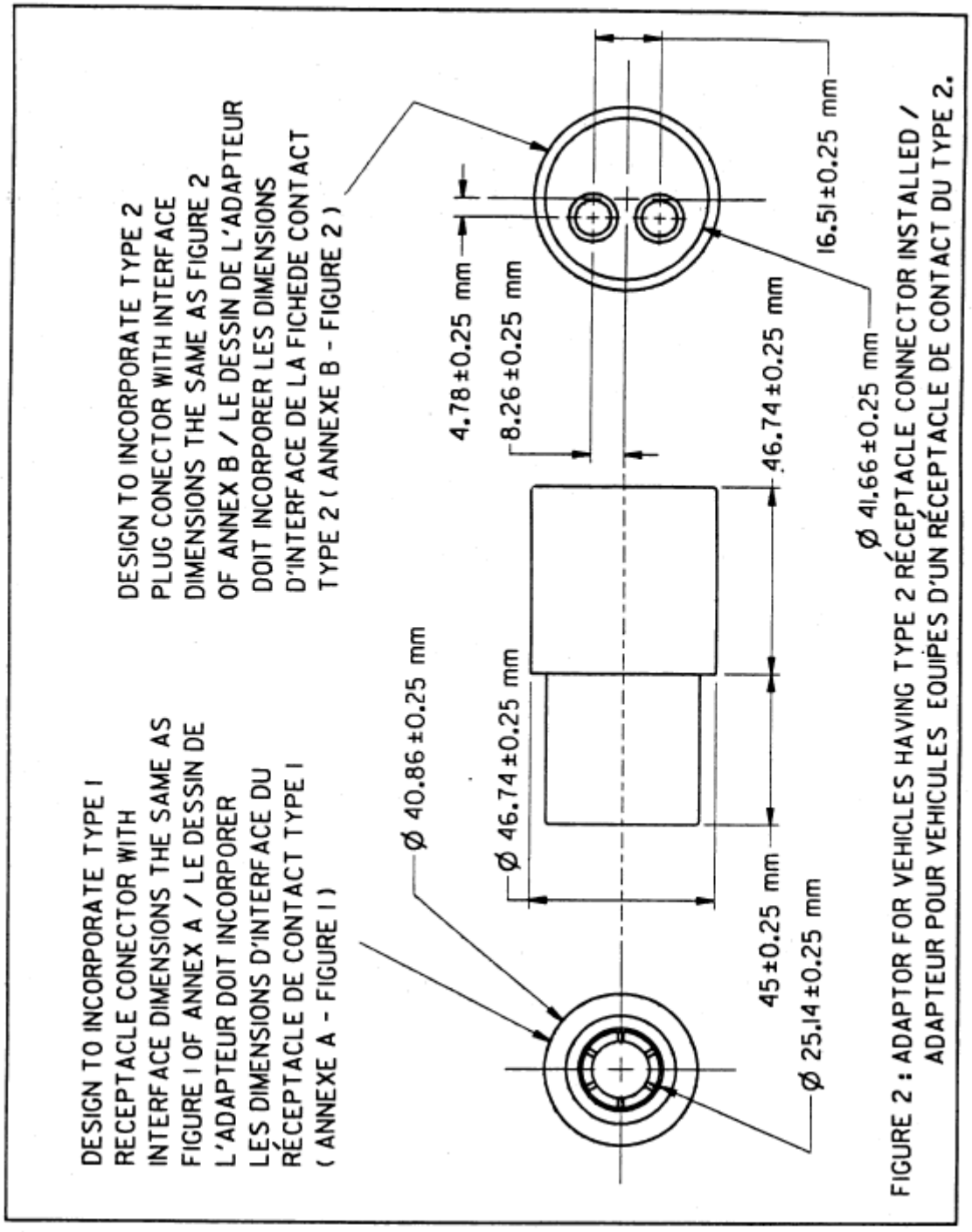


FIGURE 2 : ADAPTOR FOR VEHICLES HAVING TYPE 2 RÉCEPTACLE CONNECTOR INSTALLED /
ADAPTEUR POUR VEHICULES EQUIPÉS D'UN RÉCEPTACLE DE CONTACT DU TYPE 2.

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