Standard



BNQ 1013-110/2014

Ambulances – Vehicle Specifications





BNQ 1013-110/2014

Ambulances – Vehicle Specifications

Ambulances – Caractéristiques du véhicule

ICS: 11.160; 43.040.20; 43.040.60; 43.080; 43.160



REQUEST FOR INFORMATION AND PURCHASE

Any request for information or purchase of this document may be sent to the Bureau de normalisation du Québec (BNQ) at 333, rue Franquet, Québec, Québec G1P 4C7

[telephone: 418-652-2238, ext. 2437 or 1-800-386-5114; fax: 418-652-2292;

E-mail: bnqinfo@bnq.qc.ca; Web Site: www.bnq.qc.ca].

REVISION OF BNQ DOCUMENTS

Collaboration from BNQ document users is essential in keeping our documents up to date. Therefore, any suggestion aimed at improving their contents will be appreciated. We ask you to send us your suggestions or comments on the form at the end of this document.

SECOND EDITION — 2014-04-22

This new edition supersedes the edition dated September 13, 1999.

This document is published in both French and English. In case of incompatibility, the French version prevails.

This English translation is based on the third edition of the original French document.

The date of publication of this version corresponds to the date of publication of the French version, even though it was translated at a later date.

The systematic review of this document to determine if it has to be modified, revised, reaffirmed or withdrawn will take place no later than at the end of the ninth year following this edition.

The electronic or printed version of this document is for personal use only. Distribution to third parties, partners or clients, as well as saving, distribution or use on a computer network is forbidden without written agreement from the BNQ.

Only purchasers duly registered with BNQ Customer Service will receive document updates. Notifications and the catalogue may be consulted at all times on the BNQ Web site [www.bnq.qc.ca] to verify if a more recent version of a document exists or if amendments or errata have been published.

If a registered purchaser wishes to continue to receive updates, the purchaser must inform BNQ Customer Service of any change of address as soon as possible.

© BNQ, 2014

All rights reserved. Unless otherwise specified, no part of this document may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilming, without written permission from the BNQ.



NOTICE

UNDERSTANDING OF THE NOTION OF EDITION

It is important to note that this edition implicitly includes all the amendments and errata that might eventually be developed, and published separately. It is the responsibility of the users of this document to verify if any amendments or errata exist.

INTERPRETATION

The verb **shall** is used to express a requirement that is mandatory in order to comply with this document.

The verb **should**, or the equivalent expressions **it is recommended that** and **ought to**, are used to indicate a useful, but not mandatory, suggestion, or to provide the most appropriate means of complying with this document.

Except for the notes presented as **normative notes** that contain mandatory requirements and are stated only in the lower part of figures and tables, all other **notes** are **informative** (non-mandatory) and provide useful information pertaining to the understanding or intent of a requirement, or to add some clarification or details.

Normative annexes provide additional requirements that are mandatory in order to comply with this document.

Informative annexes provide additional information (non-mandatory) intended to assist in the understanding or use of elements of this document or to clarify its implementation, but they contain no requirements that are mandatory in order to comply with this document.

DISCLAIMER OF RESPONSIBILITY

This document was developed as a reference document for voluntary use. It is the responsibility of the users to verify if laws or regulations make the application of this document mandatory, or if trade regulations or market conditions stipulate its use, for example, in technical regulations, inspection plans originating from regulatory authorities, and certification programs. It is also the responsibility of the users to consider limitations and restrictions specified in the Purpose and Scope and to judge suitability of this document for their purpose.

REQUIREMENTS FOR MARKING AND LABELLING

It is possible that this document contains requirements for marking and/or labelling. In this event, in addition to meeting these requirements, it is also the responsibility of the suppliers of products to comply with the applicable national, provincial or territorial laws and regulations of the jurisdictions where the products are distributed.





FOREWORD

This document was prepared by the Standards Development Committee on ambulances whose members were:

BERNIER, Sylvain Ambulances Demers inc.

CÔTÉ, Gaétan Agence de la santé et des services sociaux de la

Capitale-Nationale

COURVILLE, Nicolas Transports Canada

DORÉ, Denis Novacentre Technologie Itée

DOYON, Stéphane Ambulance CTAQ, Québec

GAGNON, Jean Fédération de la santé et des services sociaux

(FSSS-CSN)

HARBEC, Michael Crestline Coach Ltd.

HOLZAPFEL, Paul Wheeled Coach Industries, Inc.

HOVINGTON, Érick Corporation des services d'ambulances du

Québec (CSAQ)

JOLICŒUR, Luc Ministère de la Santé et des Services sociaux

(MSSS)

LÉGARÉ, Michel Société de l'assurance automobile du Québec

(SAAQ)

MICHAUD, Benoît Fraternité des travailleurs et travailleuses du

préhospitalier du Québec section locale 592

(FTPQ)

PELLETIER, Michel Demers, manufacturier d'ambulances inc.

QUENNEVILLE, Michel Corporation d'urgences-santé



TRUDELLE, François Fédération des paramédics et des employés-es des

services préhospitaliers du Québec (FPESPQ)

ALLARD, Sylvain (standards developer)

Bureau de normalisation du Québec (BNQ)

The participation of the following people is also worthy of mention:

BERTHELETTE, Simon Corporation d'urgences-santé

BOUVIER, Stéphane Wheeled Coach Industries, Inc. (Aréo-Feu)

BRODEUR, Jean-François Fédération de la santé et des services sociaux

(FSSS-CSN)

COUTURE, Philippe Fédération des paramédics et des employés-es des

services préhospitaliers du Québec (FPESPQ)

COWELL, Benoit Fraternité des travailleurs et travailleuses du

préhospitalier du Québec section locale 592

(FTPQ)

FRANCŒUR, Roch Fraternité des travailleurs et travailleuses du

préhospitalier du Québec section locale 592

(FTPQ)

GOULET, Jean-François Agence de la santé et des services sociaux de la

Capitale-Nationale

HARVEY, Gina Corporation des services d'ambulances du

Québec (CSAQ)

HARVEY, Mario Fraternité des travailleurs et travailleuses du

préhospitalier du Québec section locale 592

(FTPQ)

LACASSE, Dany Fédération de la santé et des services sociaux

(FSSS-CSN)

MATES, Alexandru Transports Canada

POTVIN, Richard Demers, manufacturier d'ambulances inc.

SAUVAGEAU, Claude PMG Technologies inc.

The development of this document was made possible thanks to the financial support of the Ministère de la Santé et des Services sociaux.



CONTENTS

		D SCOPE REFERENCES	1
	MATIVE :	REFERENCES	
2.1		ILI LILIULU	1
2.2 2.3 2.4	LAWS, GOVEI	, REGULATIONS AND SIMILAR DOCUMENTS RNMENTAL DOCUMENT	1 3 3 4
DEFI	NITIONS		4
CLAS	SSIFICATION		
GENERAL REQUIREMENTS			9
5.1 5.2 5.3			9 9 9
SPECIFIC REQUIREMENTS FOR THE VEHICLE		10	
6.1	BASE	10	
	6.1.2 6.1.3 6.1.4 6.1.5 6.1.6 6.1.7	Payload Allowance Power Train Drive Train Suspension Vehicle Steering, Wheels and Tires Tools	10 10 10 11 12 12 12 12
	2.2 2.3 2.4 DEFIN CLAS GENE 5.1 5.2 5.3	2.2 LAWS 2.3 GOVE 2.4 OTHER DEFINITIONS CLASSIFICAT GENERAL RE 5.1 ASSEN 5.2 STANI 5.3 NATIO SPECIFIC REC 6.1 BASE 6.1.1 6.1.2 6.1.3 6.1.4 6.1.5 6.1.6	2.2 LAWS, REGULATIONS AND SIMILAR DOCUMENTS 2.3 GOVERNMENTAL DOCUMENT 2.4 OTHER DOCUMENTS DEFINITIONS CLASSIFICATION GENERAL REQUIREMENTS 5.1 ASSEMBLY 5.2 STANDARD EQUIPMENT OF THE BASE VEHICLE 5.3 NATIONAL SAFETY MARK SPECIFIC REQUIREMENTS FOR THE VEHICLE 6.1 BASE VEHICLE 6.1.1 General 6.1.2 Payload Allowance 6.1.3 Power Train 6.1.4 Drive Train 6.1.5 Suspension 6.1.6 Vehicle Steering, Wheels and Tires 6.1.7 Tools



	6.2	VEHIC	LE CAB	12
		6.2.1	Dials and Warning Lights	12
		6.2.2	Flooring and Running Board Material	13
		6.2.3	Cab Seats	13
		6.2.4	Adjustable Steering Wheel	13
		6.2.5	Armrests	13
		6.2.6	Sun Visors	13
		6.2.7	Cruise Control	13
		6.2.8	Radio	13
		6.2.9	Interior Lighting	14
		6.2.10	12-V Direct-Current Receptacle	14
		6.2.11	Outside Rearview Mirrors	15
		6.2.12	Windshield Washer and Wipers	15
		6.2.13	Storage Compartment	15
		6.2.14	Cup Holders	15
		6.2.15	Hooks to Hang Occupants' Clothing	15
		6.2.16	Grab Handles	15
		6.2.17	Anti-Theft and Anti-Movement System	16
		6.2.18	Ambulance Height Indication	16
		6.2.19	Tachograph	16
		6.2.20	Side Running Boards	17
		6.2.21	Auxiliary Headlamp	18
7	AMB	AMBULANCE ELECTRICAL SYSTEM		
	7.1	GENERAL		18
	7.2			18
		7.2.1	General	18
		7.2.2	Vehicle Storage Batteries	18
		7.2.3	Auxiliary Batteries	19
		7.2.4	Battery Recharging Protection Circuit	19
	7.3	JUMP-START CIRCUIT FOR THE BASE VEHICLE		19 20
	7.4	7.4 ELECTRICAL CIRCUITS FOR THE PATIENT COMPARTMENT		
		7.4.1	Electrical Splices, Terminals and Wiring	20
		7.4.2	Electrical Compartments	20
		7.4.3	12-V Direct-Current Receptacles	21
		7.4.4	Inverter to Transform 12-V Direct Current to 120-V Alternating Current	21
		7.4.5	Exterior Alternating Current Power Connector	21
		7.4.6	120-V-Alternating-Current Circuits	21
		7.4.7	120-V-Alternating-Current Outlets	22
		7.4.8	Battery Charging System	22
		7.4.9	Electronic and Communication Systems Compartment	22



	7.5 7.6	12-V DIRECT-CURRENT ELECTRICAL GENERATING SYSTEM CONTROL CONSOLE		23 23	
		7.6.1	Cab Control Console	23	
		7.6.2	Patient Compartment Control Console	24	
	7.7	ELECT	ROMAGNETIC COMPATIBILITY	25	
8	SPEC	SPECIFIC REQUIREMENTS FOR THE PATIENT COMPARTMENT			
	8.1	AMBULANCE BODY AND STRUCTURE			
		8.1.1	Outside Dimensions	26	
		8.1.2	Structure	26	
		8.1.3	Patient Compartment Anchorage	26	
		8.1.4	Galvanic Compatibility	26	
		8.1.5	Roof	26	
		8.1.6	Acoustic Insulation	26	
		8.1.7	Rear Bumper and Steps	27	
		8.1.8	Ground Clearance	27	
		8.1.9	Angles of Approach and Departure	28	
		8.1.10	Floor	28	
		8.1.11	Doors and Windows	28	
		8.1.12	Patient Compartment Front Partition	30	
		8.1.13	Spare Tire Storage	30	
		8.1.14	Weight Distribution	30	
		8.1.15	Air Conditioning and Heat	31	
		8.1.16	Ventilation	32	
	8.2	INTERIOR LAYOUT AND COMPONENTS		32	
		8.2.1	Inside Height	32	
		8.2.2	Designated Seating Positions	33	
		8.2.3	Patient Compartment Walkways	35	
		8.2.4	Medical Supply Cabinet and Storage Spaces	35	
		8.2.5	Accessories and Components	38	
		8.2.6	Dual-Stretcher Ambulances	42	
		8.2.7	Type-II Ambulances	44	
	8.3	SIGNAL SYSTEMS		45	
		8.3.1	Siren	45	
		8.3.2	Public Address System	45	
		8.3.3	Warning Lights	45	
		8.3.4	Back-Up Alarm	47	
	84	FI OOD	NI IGHTS FOR OUTSIDE WORK AREAS	47	



8.5	PAINTING OF THE CAB AND PATIENT COMPARTMEN		Γ 47	
	8.5.1 8.5.2	Paint Colour Paint Applied by the Assembler	47 48	
8.6	REFLE	ECTING STRIPES	48	
8.7	8.6.1 8.6.2 8.6.3 8.6.4 8.6.5 8.6.6	White stripes	48 48 49 50 51 52	
	8.7.1 8.7.2 8.7.3 8.7.4 8.7.5 8.7.6	General "Star of Life" Emblem Inscription of the Word AMBULANCE 9-1-1 Call Sign Inscription	52 53 53 54 55 55	
9 DOC	UMENTS	TO BE HANDED OVER TO THE PURCHASER	56	
10 MAF	RKING		56	
FIGURE 1 —	- TY	PE-I AMBULANCE	58	
FIGURE 2 —	- TY	PE-II AMBULANCE	59	
FIGURE 3 —	- TY	PE-III AMBULANCE	60	
FIGURE 4 —	- TY	PE-I AMBULANCE — WARNING LIGHTS: ZONES	61	
FIGURE 5 —	- TY	PE-II AMBULANCE — WARNING LIGHTS: ZONES	62	
FIGURE 6 —	- TY	PE-III AMBULANCE — WARNING LIGHTS: ZONES	63	
FIGURE 7 —	- "ST	ΓAR OF LIFE" EMBLEM	64	
FIGURE 8 —	- TY	PE-II AMBULANCE: STRIPE LOCATIONS	65	



FIGURE 9 —	TYPES I AND III AMBULANCES: STRIPE LOCATIONS	66
FIGURE 10 —	TYPES I, II AND III AMBULANCES: STRIPES AND IDENTIFICATION OF INSIDE REAR ACCESS DOOR LEAVES	67
FIGURE 11 —	STICKER WITH 9-1-1 CALL SIGN	68
FIGURE 12 —	SEAT CUSHION TOP	69
FIGURE 13 —	ANGULAR REFERENCE	70
FIGURE 14 —	DISPOSITION OF ANCHORAGE PLATES	71
FIGURE 15 —	PROTECTIVE STRIPS	72
ANNEX A —	ELECTRICAL WIRING	73
TABLE A.	1 — MAXIMUM LENGTH OF ELECTRICAL WIRING	73
ANNEX B —	STATIC TEST AND ROAD TEST	74
ANNEX C —	INFORMATIVE REFERENCES	76





AMBULANCES — VEHICLE SPECIFICATIONS

1 PURPOSE AND SCOPE

This standard defines the requirements related to the specifications of an ambulance used to transport occupants, taking into account their comfort and safety.

It should be taken into account that ambulances shall comply with the Canada Motor Vehicle Safety Standards (CMVSS) under Transport Canada's *Motor Vehicle Safety Act* and the *Motor Vehicle Safety Regulations*.

This document was developed to serve as a reference document for conformity assessment activities of specific products.

NOTE — Conformity assessment is defined as the systematic examination of the extent to which a product fulfils specified requirements.

2 <u>NORMATIVE REFERENCES</u>

In this document, a dated normative reference means that this specific edition shall be used, while a non-dated normative reference means that the last edition of this reference shall be used.

For the purpose of this document, the following reference documents (including any amendment, errata, corrigenda, etc.) contain necessary requirements and are referred to in appropriate places in the text:

2.1 DOCUMENTS FROM STANDARDS BODIES

ASTM International [www.astm.org]

ASTM B819-00 (2011) Standard Specification for Seamless Copper Tube

for Medical Gas Systems.

ASTM C1028-07⁶¹ Standard Test Method for Determining the Static

Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer

Pull-Meter Method.