

# BIORID-II SPINE BUMPER REPLACEMENT CERTIFICATION REQUIREMENTS

JULY 2025

UNECE GTR No. 7 requirements for spine bumper replacements are implemented in Humanetics certification services world-wide.

## Background

The BioRID-II Anthropomorphic Test Device (ATD) certification involves several key tests to ensure consistent performance across different components: jacket certification, pelvis bottom certification, and complete torso certification (dummy certification without headrest).

In the past, standard recertification services have allowed customers to replace spine bumpers at their discretion, based on the dummy's performance during tests. However, Humanetics has recommended regular replacement of all bumpers to maintain consistency and reliability in test outcomes. This practice helps ensure that the dummy performs predictably and accurately reflects real-world conditions.

## Addendum I to M.R. No. 1

The technical specifications, detailed drawings, and adjustment specifications of the BioRID-II dummy when used for GTR No. 7 are documented in Addendum I to [UNECE Mutual Resolution No. 1 \(M.R.1\)](#) of the 1958 and 1998 Geneva Agreements (the establishing of legal framework for wheeled vehicles, equipment, and parts by the World Forum for Harmonization of Vehicle Regulation (WP.29)) which details the description and performance of test tools and devices. M.R.1 is analogous to a global version of the U.S. CFR Part 572 intended to drive consistent builds of crash test dummies.

The M.R. 1 Addendum 1 contains BioRID-II specifications for the required instrumentation, external dimensions & masses, assembly / disassembly / inspection procedures, indexed drawings, certification tests & procedures, certification reporting, design & maintenance checklists, bumper replacement intervals, and documentation requirements.

## Bumper Replacement Requirements

The cervical region of the spine (vertebrae C1 through C7 plus T1) contains 16 elastometric cube-shaped bumpers. The remainder of the thoracic and lumbar spine contain another 34 bumpers. During the development of the BioRID-II dummy it was identified that regular replacement of these bumpers is necessary for adequate repeatability and reproducibility of this ATD.



**Addendum 1 prescribes the frequency for bumper replacement:** “The front cervical bumpers (C1-C7) and the front thoracic bumper (T1) shall be replaced no later than when they reach the age of 12 months. The operational life of all other spinal bumpers is limited to 24 months. The period of validity of a dummy certification shall not exceed the date at which any bumper reaches its maximum operational age.” (annex 1, section 3.2)

“Also the dummy certification certificate shall be valid for a period no greater than 12-months. In the case where the spinal bumpers will exceed the age specified above, the dummy compliance certificate shall only be valid until the first bumper age threshold is reached. Similarly, the validity of the dummy certificate shall not exceed the validity of the certification of the jacket or of the lower torso assembly.” (annex 3, section 1.5)

## Changes to Recertification Services

The requirements for bumper replacement have been applied by local Humanetics entities in regions where the BioRID-II dummy is used in type approval regulations and/or consumer rating procedures. In light of ongoing rear impact protection activities across the global industry, bumper replacements in accordance with M.R. 1 Addendum 1 will now be implemented worldwide in all certifications conducted by Humanetics. As a result, bumper replacement will become a standard part of the certification service.

To enable monitoring of certification and replacement intervals, all future certification tests will follow MR-1 recommendations.

Our sales teams will work closely with customers to highlight and discuss M.R.1 requirements as needed. They will also request the status of the BioRID-II and provide maintenance proposals as required.

For ATDs regularly maintained by Humanetics, we will keep a maintenance log to track upcoming maintenance needs. If the maintenance status is unclear, both the 12- and 24-month kits must be replaced.

(Service table on page 2)

# BIORID-II

## SPINE BUMPER REPLACEMENT CERTIFICATION REQUIREMENTS (CONT'D)

### BioRID-II Certification Services

BioRID-II Certification Service Items			
Service Kit	Description	Part Numbers	Qty
UNECE Mutual Resolution No. 1 Items			
ARA-BUMPERKIT-1	BUMPER KIT, 12 MONTH CERT		
	BUMPER, CERVICAL FRONT AND REAR, BLACK	ARA-220	8
ARA-BUMPERKIT-2	BUMPER KIT, 24 MONTH CERT		
	BUMPER, CERVICAL FRONT AND REAR, BLACK	ARA-220	3
	BUMPER, CERVICAL REAR YELLOW 30 A DURO	ARA-227	5
	BUMPER, THORACIC	ARA-381-30	12
	THORACIC BUMPER, BLACK, 37A DUROMETER	ARA-381-37	12
	BUMPER, LUMBAR - REAR	ARA-520	5
	BUMPER, LUMBAR - FRONT	ARA-521	5
Consumables (ex. new cables, bumpers, fasteners, etc.)			
ARA-BUMPERKIT-T1	BUMPER KIT, T1 LC CAL		
	BUMPER, CERVICAL FRONT AND REAR, BLACK	ARA-220	1
	BUMPER, CERVICAL REAR YELLOW 30 A DURO	ARA-227	1
CERT-24ATD-11	CERT. BIORID ATD #1, ANALOG		
	CABLE, DAMPER	ARA-409	1
	CABLE SPRING W/TERMINAL	ARA-369	2
	BOOT, VINYL CABLE	ARA-413	4
	CABLE CAP, 2MM ID, ALUMINUM	9010293-DN	4
	CABLE FERRULE	9005133-DN	4
	O RING	9005132-DN	2
	SCREW SHCS M2.5 X 0.45 X 8	5000458-FT	2
	SCREW, SSFP, M4 X 6MM NYLON TIPPED	9010112-DN	2
Misc. Packaging etc.			
	PE BAG LARGE	6005289	1
	PE BAG SMALL	6005288	2
	DESICCANT BAG	6005287	4
	SCREW, FHCS M3 X 6MM	9005126-DN	1

For questions or more information please contact your local Humanetics Customer Service or Sales representative.