

INF GR/PS/35		Conflicts with existing regulations, directives, standards or consumer demands when taking into account impactor tests on the vehicle front for pedestrian protection								Conflicts with existing regulations, directives, standards or consumer demands when taking into account impactor tests on the vehicle front for pedestrian protection
No	Title	EC	ECE	USA FMVSS	Canada CMVSS	Australian ADR	Japan Artikel	Other countries	Consumer satisfaction	Comments
1	Lamps: beam lamps, fog lamps, position lamps, parking lamps, direction indicator front&lateral, day time running light	76/756 76/761 - 99/17 76/758 - 97/30 77/540 - 99/16 76/762 - 99/18 76/759 - 99/15	6, 7, 19, 48, 77, 87, 98, 112	108, SAE J 222, 583, 588, 914	108	6/00, 13/00, 46/00, 49/00, 50/00, 76/00, 77/00	32 33_Trias34, 34_Trias34, 41_Trias22, 37-3	Gulf (ECE)	-	In general the lamps have to be mounted adequately stiff to be in full function in all situations (no glass break, good illumination etc.). It is not possible to locate lamps in areas which are not in pedestrian protection test zones. Moving the lamp systems to the rear to get more space the legform and headform impactors conflict with the normal function of the lamp system e.g. less illumination due to snow or dirt. In addition some investigations had shown that the inertia of the lamp assembly alone - neglecting the mounting to the vehicle front - would result in high loadings of pedestrian headform impactors.
2	Field of vision	77/649 - 90/630	-	-	-	42/03	29	-	-	Fulfilling the headform tests might lead to a raised bonnet to get enough clearance or to an elongated one to cover critical parts in the c area. To comply with this directive could lead to higher H-points, thus higher roof lines lead to more air drag and fuel consumption (see also no 16). Also deployable systems might obstruct the field of vision in critical situation.
3	Rear view mirrors	71/127 - 88/321	46-01	111	111 (partly USA)	14/02 (partly USA)	44_Trias29, 44_Trias39 (partly EC)	Gulf (ECE)	-	It is extremely difficult to comply with headform test requirements when mirrors located on wings (stiff mounting etc.). Mirrors on wings could be a solution to have a better view around the vehicle to see e.g. hidden children. The problem of hidden children is under discussion in Japan. In case there should be a Japanese national regulation this would conflict with the headform test criteria.
4	Hood latch system	-	-	113, 401	113 (USA)	42/02, 42/03	-	-	X	The latch systems have to be strong enough to keep the bonnet in position in normal ride conditions (e.g. wind pressure at high speeds). Soft latch systems which could fulfil headform tests requirements could possibly open under such strong circumstances.
5	Glazing materials / safety glazing	92/22 - 2001/92	43-01	205	205 (USA)	8/01 (partly ECE)	29_Trias52	Gulf (ECE)	-	The material of windcreens must provide a minimum resistance against intrusion of objects hitting the windscreen under normal ride conditions. According to current headform tests the material composition of windcreens seems to be too stiff. Softer materials could be in contradiction to this regulation.
6	Windscreen washers and wiper	78/318 - 94/68	-	104	104 (USA)	16/01 (partly USA)	45_Trias28-2	-	-	Compatibility between windscreen washer and wiper system (regulation, necessary strength and reliability) and pedestrian friendliness has to be investigated.
7	Headlamp cleaning device	76/756 - 97/28	45	SAE J 2111	SAE J 2111	75/00	32 (ECE)	-	-	Compatibility between cleaning systems complying this regulation and pedestrian friendliness has to be investigated. Cleaning devices placed into the bumper between its skin and crossmember would worsen legform test results.
8	Crash: occupant protection + advanced airbags, 0° and 30° frontal	-	-	208	208 (USA)	69/00	18_Trias47 (USA)	China (ADR) Korea (USA)	-	In general there should be no disadvantages for occupant protection. Pop up bonnets and their sensor systems designed to comply with the headform tests must be carefully evaluated regarding reliability or faulty deployments (see also no 12).
9	Crash: occupant protection offset deformable barrier	96/79 - 99/98	94-01	-	-	73/00 (ECE)	-	-	-	See no 8. Softening e.g. the A pillars could lead to structural failure which would decrease the volume of the survival cell. This would have disadvantages in the frontal crash tests. The stiffness of the front-end is essential in a frontal offset crash. It helps to ensure a necessary load path to the longitudinal bar which is not directly struck in the ODB crash.
10	Crash: occupant protection roll over	-	-	208	-	-	-	-	-	To pass the roll over requirements the windscreen, frame and A-pillars have to be stiff. This is clearly contradicting the idea of softening these parts in order to fulfil headform tests in this areas. Additional padding of frame or A-pillars at least could lead to fail the field of vision directive (see no 2).
11	Crash: windshield mounting	-	-	212	212 (USA)	-	-	-	-	The mounting (glue) of the windscreen into the front frame has to be strong enough that more than 50% of the glue line must be kept in function during frontal car crash to guarantee a sufficient support of the airbags (occupant protection). If the stiffness of the glueing has to be minimized to possibly meet headform test requirements near the frame it will clearly not meet this standard.
12	Crash: windshield zone intrusion	-	-	219	219 (USA)	-	-	-	-	This standard defines an area where no external part may hit the windscreen, e.g. the bonnet. This means indirectly that the hinges and latches of the bonnet have to be strong enough what is in contradiction to pass the criteria for headform tests. Pedestrian protection devices as pop up bonnets must be examined extremely critical with respect to failure deployments. In real world accidents it may often happen that the vehicle hits first a light obstacle before impacting a real rigid one.
13	External projection	74/483 - 87/354 draft.III/5711/96	26-02	-	211	42/03	18, ECE R26	-	-	The concerns regarding this regulation is related to edges of deployed pop up bonnets. It must be carefully investigated how to pass the external projection at the edges of the hoods insuring also no further injury risk for pedestrians due to pop up bonnets in function.
14	Bumper standards front	74/483 - 87/354 70/221 - 2000/8	42, 26-02	Part 581 California Hawaii	215	-	-	Gulf (ECE) China 7258-97 Korea (USA,J)	-	This standards take aim at the full functionality of e.g. head lamps (adjustable, no glass break etc.) when the bumper is impacted e.g. by pendulum at 2.5mph or 5mph. Softening the bumper in order to comply with legform requirements is a problem with this standards.
15	Towing devices	77/389 - 96/64	-	-	-	-	-	DIN ISO 5422	X	Towing eyes need to be moved backwards to fulfil legform requirements. This conflicts with the stiffness requirements of towing device independent of the fact that the towing eye is removable or not.
16	CO ₂ commitment (EC)	-	-	-	-	-	-	-	-	Complying with impactor tests on the vehicle front will need more clearance to hard under bonnet spots. This will result in higher vehicles and thus more air drag (higher coefficient of aerodynamic resistance) and fuel consumption. This is therefore not in line with the main goals of the CO ₂ commitment of the European Commission and the industry (see also no 2).
17	Resistance of bonnet & wings	-	-	-	-	-	-	-	X	Soft and light designs of the car front may be negative in normal driving conditions like hail or gravel etc. or during vehicle handling.
18	Bonnet torsion resistance, hinges	-	-	-	-	-	-	-	X	Too soft bonnets due to the fulfilment of headform tests criteria could result in a decrease of the overall stiffness of the bonnet. This can cause a bonnet flapping at higher speeds and also problems during vehicle handling. The hinges have to be stiff enough to avoid vibration in the rear part of the bonnet and to guarantee the stiffness of the bonnet by 3 points, hinges and lock.
19	Angle of approach	-	-	-	-	-	-	-	X	For some cars a sufficient angle of approach is needed to guarantee the vehicle's function. This conflicts with legform impactor test requirements.
20	Insurance classification	-	-	-	-	-	-	-	RCAR (AZT), IIHS-Tests	Soft bumper design, soft bonnet designs, deployable devices will increase repair costs and insurance premium rates. An increase of the distance between bumper skin and cross member may also result in a poor behaviour during frontal crash.
21	Engine ventilation	-	-	-	-	-	-	-	X	The bumper / front part needs a minime open surface to ventilate the radiator in order to provide good function of the cooling system. No design elements to fulfil legform requirements - such as additional spoilers - will conflict with the necessity of a full functionable cooling system.
22	Isolation of the compartment	-	-	-	-	-	-	-	X	A special wall separating the occupant compartment and the engine is needed to be sure that no exhaust fumes may penetrate. This wall could conflict with headform test criteria. Soft wall materials for which the headform test might comply with are not suitable for important secondary functions of the wall e.g. providing enough support for the hinges etc..