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2020 Safety & Technology Glossary

Structural system technology

1. Energy-absorbing steering column: Manual-adjust steering column features two hydroformed coaxial tubes that move relative to each other to allow for enhanced energy absorption during an impact; power-adjust steering column employs a calibrated bending element that deforms during column stroke for optimal energy management
2. Front and rear crumple zones: Specially-formed structural members that crumple and absorb energy in a collision, helping protect the occupant cabin
3. Laminated glass: Plastic sandwiched between glass panes to provide added strength; discourages break-ins
4. Safety cage body structure: Helps protect occupants by managing and controlling energy in the event of an impact
5. Side-guard door beams: Reinforcement beams inside the doors that help provide occupant protection in certain side collisions
6. Splayed and Tapered Frame Rail Technology: Highly efficient, energy-absorbing frame rail structure for certain frontal impacts; features frame-mounted, high-strength steel tire blockers to redirect tires outbound in certain front-offset impacts

Driver warning and assist, chassis-control and brake systems

1. Advance Brake Assist: Works with Full-speed Forward Collision Warning-Plus; increases deceleration if driver does not apply brake with sufficient force to respond to a potential collision condition
2. Adaptive Cruise Control-Plus with Full Stop: Helps maintain distance from vehicle ahead; under certain traffic conditions, system can bring vehicle to full stop without driver intervention
3. All-speed traction control system: While driving, helps keep wheels from spinning during acceleration from a stop or at speed by applying brakes alone or in combination with engine torque limitation
4. Anti-lock brake system (ABS): Senses and helps prevent wheel lockup, offering improved steering control under extreme braking and/or slippery conditions
5. Blind-spot Monitoring (BSM): Uses radar sensors to aid driver when changing lanes, passing or being passed; blind-spot vehicle presence noted via illuminated icons in side-view mirrors and driver-selectable audible chime
6. Brake Assist: System applies maximum braking power in emergency braking situations, minimizing stopping distanc
7. Brake-lock differential system (BLDS): Allows the vehicle to maintain forward motion if one or two wheels lose traction by selectively applying brakes to the spinning wheels
8. Brake-throttle override: Standard equipment on every FCA US vehicle, it allows driver to more quickly stop the vehicle when throttle and brake inputs occur simultaneously; electronic throttle control reduces engine-power output
9. Brake/park Interlock: Prevents transmission from being shifted out of “Park” unless the key is engaged with the starting system and the brake pedal is pressed
10. Brake traction-control system (BTCS): Helps to keep wheels from spinning during acceleration from a stop or during slow speeds by applying individual brakes to the slipping wheel(s)
11. Electronic brake-force distribution (EBD): Optimizes stopping distances and control under all vehicle loading conditions by regulating braking pressure, front-to-rear
12. Electronic roll mitigation (ERM): Uses input from electronic stability control (ESC) sensors to anticipate potential rollover conditions; applies brakes individually and modulates the throttle position as needed to help reduce the potential of vehicle rollover
13. Electronic stability control (ESC): Enhances directional control and stability of vehicle in various driving conditions; activation occurs when steering-wheel angle is inconsistent with vehicle’s direction of travel;

automatically reduces throttle input and/or selectively deploys brakes to counteract oversteer or understeer

14. Full-speed Forward Collision Warning-Plus: Radar and camera technology combine to determine if frontal impact with another vehicle appears imminent; if so, system pre-fills brakes, then transmits audible and visual warnings for driver to intervene; no driver response triggers brief brake application as tactile alert; if driver remains unresponsive and frontal collision risk remains, brakes are applied to slow vehicle before impact; system may bring vehicle to full stop if imminent frontal collision detected at speeds below 31 mph or 25 mph, depending on the model
15. Forward Collision Warning-Plus: Radar and camera technology combine to determine if frontal impact with another vehicle appears imminent; if so, system pre-fills brakes, then transmits audible and visual warnings for driver to intervene; no driver response triggers brief brake application as tactile alert; if driver remains unresponsive and frontal collision risk remains, brakes are applied to slow vehicle before impact
16. Forward Collision Warning: Radar determines if a frontal impact with another vehicle appears imminent; if so, system pre-fills brakes, then transmits audible and visual warnings for driver to intervene
17. Hill-start Assist: Assists drivers when starting from a stop on a hill; maintains brake pressure for short period of time after driver's foot is removed from the brake pedal; if throttle is not applied within short period of time thereafter, brake pressure will be released
18. Lane Departure Warning with Lane-Keep Assist: Alerts and assists driver; leverages electric power steering (EPS) to deliver subtle steering-wheel input when system detects need for course correction
19. ParkSense Parallel/Perpendicular Park Assist: Features ultrasonic sensors on the bumper to find and guide driver into parking space; guidance system automatically controls the steering angle while driver controls gear position, brake, and accelerator; parallel parking possible on either side of the car; to accommodate perpendicular parking, vehicle is backed into the space
20. ParkSense Rear Park Assist Systems with Stop and Release: In reverse, at low speeds, ultrasonic sensors detect stationary objects; if imminent collision is detected, system will provide momentary, autonomous brake pulse; below 4.4 mph, system will bring vehicle to a stop before releasing
21. ParkView rear backup camera: Provides wide-angle view of area immediately behind vehicle; available features include dynamic grid lines to aid driver when maneuvering into parking spaces or narrow areas; also assists when lining up trailer to vehicle's hitch, when so equipped; image displayed on the center-stack screen or rear-view mirror when transmission is shifted into reverse
22. Rain Brake Support: In rainy conditions, occasionally pushes brake pads lightly against brake rotors to keep rotors dry
23. Ready Alert Braking (RAB): Anticipates situations when driver may initiate an emergency brake stop and uses ESC pump to set brake pads against rotors, decreasing time required for full brake application
24. Rear Cross Path (RCP) detection: In parking-lot situations, warns drivers of lateral traffic when backing out of parking spaces; automatically activates any time a vehicle is in reverse gear; driver alerted of approaching vehicle(s) via illuminated icons on side-view mirrors and driver-selected audible chime
25. Trailer-sway Mitigation: Uses input from electronic stability control (ESC) sensors to anticipate potential trailer-induced yaw conditions; applies brakes individually and modulates throttle to help driver maintain control

<u>Occupant restraint technology</u>

1. Active head restraints: Deploy during collision; help limit occupant head movement
2. Advanced multistage driver and front-passenger air bags: Inflate with force appropriate to the severity of the impact; meet FMVSS 208 advanced air bag requirements for smaller, out-of-position occupants
3. All-row, full-length side-curtain air bags: Extend to all outboard front- and rear-seat passengers; housed in headliner above side windows, each side air bag has its own impact sensor that, when warranted, triggers deployment on the side of the vehicle where impact occurs
4. BeltAlert: Activates chime and/or illuminates icon in instrument cluster to remind driver and front passenger to buckle up if vehicle is driven with unbelted front-seat occupants
5. Child Seat Anchor System: LATCH (Lower Anchors and Tethers for CHildren) designed to ease installation of compatible aftermarket child seats
6. Constant-force retractors: Regulates force exerted on occupant by seat belt, by gradually releasing webbing in controlled manner
7. Front seat-belt pretensioners: During a collision, impact sensors initiate front seat-belt pretensioners to remove slack in the seat-belt system, thereby reducing the forward movement of the occupant's head

and torso

8. Front-seat-mounted side pelvic thorax bags: Help provide enhanced protection to driver or front passenger in certain impacts
9. Driver's-side knee air bag: Deploys with advanced multistage driver air bag; located below instrument panel, device designed to properly position occupant during impact
10. Height-adjustable seat belts (front row): Outboard seat belts feature height adjustment, allowing for seat belt to be placed in optimal position
11. Occupant Restraint Controller: Detects impact and determines if air bag deployment, and degree of deployment, is appropriate; also manages front seat-belt pretensioners

Lighting and visibility systems

1. Active turn signals: Turn signal flashes three times when stalk is depressed for one second
2. Adaptive Front-lighting System (AFS): Points headlamps in the intended direction of vehicle travel using steering-wheel and vehicle-speed inputs to provide improved illumination entering turns
3. Auto-adjust exterior mirrors: Side-view mirrors automatically adjust to enhance the field of view for backing maneuvers
4. Auto-dimming rearview mirror: Auto-dimming mirror automatically reduces glare from bright light of trailing vehicles, allowing driver to have a clearer view of the road ahead
5. Automatic defog: Automatic temperature control system measures interior humidity and activates defogging system without driver intervention
6. Automatic headlamps: Headlamps turn on and off automatically depending on exterior light levels and if windshield wipers are operating
7. Automatic high-beam headlamps: Headlamp system adjusts to ambient light and oncoming traffic to deliver maximum lighting without driver intervention
8. Daytime Running Lamps (DRL): Low-intensity halogen or signature LED lights that illuminate during daytime conditions, increasing vehicle's visibility to other drivers
9. Enhanced Accident Response System (EARS): Makes it easier for emergency personnel to see and reach occupants in the event of an accident by turning on the interior lighting and unlocking doors after air bag deployment; also shuts off flow of fuel to the engine
10. Heated windshield washer nozzles: Helps ensure nozzles stay free of ice and snow during freezing conditions
11. High-intensity discharge (HID) headlamps: Provide approximately three times the light output than conventional reflector lamps
12. Halogen infrared reflecting bulbs (HIR): Unique component coating delivers greater light output than conventional bulbs
13. LED fog lamps: Provide improved illumination during inclement weather
14. LED headlamps: Provide improved illumination
15. LED tail lamps: Provide improved illumination (brake, stop, turn and running light functions)
16. Rain-sensing Wipers: A driver convenience feature that automatically senses moisture on the windshield and activates wipers

Other features

1. Auto-reverse sunroof: Automatically reverses when it senses an obstruction while closing
2. Auto-reverse windows: Automatically reverses when it senses an obstruction while closing
3. Capless fuel-filler door: Enables fuel-filling simplicity
4. Child-protection Rear Door Locks: Disables rear doors' inside-release handle by adjusting a small lever opposite the doorjamb
5. Electronic Locking Fuel-filler Door: Prevents theft or tampering, which can lead to damage, inefficiency and unwanted fuel vapor release
6. Express up/down windows: One-touch express up/down window function
7. Global Position Sensor (GPS): Used for navigation guidance and electronic vehicle tracking
8. Intelligent Battery Sensor (IBS): Continually measures flow of current into and out of battery; if battery is running low, system shuts off less-critical electrical systems to conserve power; icon in cluster denotes activation
9. Inside Emergency Trunk-lid Release: Glow-in-the-dark handle enables unlocking from inside trunk
10. Keyless Enter 'n Go: Electronic sensors detect if unique vehicle key fob is present, which enables passive

cabin entry and trunk access; illuminates interior lamps and enables push-button ignition – no need to insert key

11. Remote keyless entry: Locks and unlocks doors and turns on interior lamps. If vehicle is equipped with security alarm, remote also arms and disarms system
12. Remote start: Fob-activated convenience; starts engine and activates interior climate settings while maintaining vehicle security
13. Sentry Key Engine Immobilizer: Utilizes engine key with embedded transponder and preprogrammed security code to discourage vehicle theft; when key is inserted into the ignition, controller sends a random number to the transponder and engine is allowed to start; engine will shut off after a few seconds if an incorrect key is used
14. SOS/Assist: Button on rearview mirror or overhead console connects occupants with call-center agent who can send emergency assistance to the vehicle's location
15. Speed-sensitive door locks: System automatically locks doors when vehicle reaches prescribed speed
16. Tilt-and-telescoping steering column: Allows steering column to tilt and move toward or away from the driver to achieve a safe and comfortable distance from the advanced multistage front driver air bag, if deployed
17. Tire-fill Alert: When filling tires with air, the system provides an audible "chirp" when a recommended pressure is achieved
18. Tire-pressure Monitoring System (TPMS) – Lock-on Sync: Informs driver when tire pressure is too low; pressure-sensor modules within valve stems of all four wheels send continuous radio-frequency signals to a receiver; available systems use graphic display to indicate tire-specific pressure
19. Uconnect Voice Command: Voice-recognition technology enables hands-free navigation-system inputs and access to real-time information, such as weather forecasts
20. Uconnect Voice Command with Bluetooth: Voice-recognition technology enables drivers to use Bluetooth-enabled phones while keeping their hands on the wheel and eyes on the road

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