GLOSSARY OF TERMS

Collision Theory

Center section -the basically flat, rigid passenger compartment area determined by the rocker panels.

Collapse - the physical shortening or arrowing of any part of the vehicle structure as a result of collision damage.

Collision - two forces striking one another.

Collision theory - the analysis of all the forces involved in collision repair.

Deflection of forces - the redirecting of collision forces caused by the design of the vehicle or its direction of travel in relation to the object it strikes.

Direction of travel - the direction the vehicle is traveling at the time of the collision in relation to the object it strikes.

End sections - the front or rear section of the vehicle.

External force - is the force exerted by the other vehicle or object involved in a collision.

Force - when used to explain how collision damage occurs, force is the pressure one object exerts on another.

Front section - the area of the vehicle from cowl area forward.

Impact side - the side of the vehicle where the actual collision occurs.

Internal force - is the force exerted from within the vehicle itself during a collision.

Inertia - the tendency of an object at rest to remain at rest or an object in motion to remain in motion.

Lateral misalignment - any sideways misalignment of a front or rear section of a vehicle with regard to the center section.

Misalignment of sections - the lateral or vertical misalignment of the front or rear section in relation to the center section.

Rear section - the entire area of the vehicle rearward of the center section.

Structural design of the vehicle - the shape and strength of the vehicle's inner frame work or structure.

Three-section principle - states that because of structural design, vehicles react as three basic sections (front, center, and rear) during a collision.

Measuring & Analyzing Collision Damage

Body-Over-Frame Vehicles - a method of vehicle construction in which a rigid welded body structure is actually bolted to a separate heavy framework. The vehicle's suspension and drive train components are attached to the frame only.

Body 0 Line (Plane) - imaginary line/plane that bisects the vehicle at the front or rear of its center section and is the starting point for all length measurements.

Centerline (Plane) - imaginary line/plane that bisects the vehicle lengthwise and is the starting point for all width measurements.

Collapsed or Short Rail (mashed) - a frame rail or unitized body sub-rail physically shortened due to buckling or crushing from a collision.

Control Points - even though control points are often regarded as factory reference points shown on the vehicle dimension sheet, they are really any point on which correct structural alignment is dependent.

Cowl - the part of the vehicle that supports the instrument panel and separates the passenger compartment from the engine compartment.

Damage Analysis - the combination of a visual inspection, gauging, measuring, and interpretation of all the information gathered to determine what damage exists and what must be done to correct the damage.

Data Base - computer files containing customer information, vehicle specifications and graphics.

Datum Line (Plane) - imaginary line/plane found on side view drawing of a vehicle used for calculating all height measurements.

Diamond - a type of damage that occurs when one frame rail is driven either forward or rearward of the opposite rail leaving the center section out of square and in the shape of a diamond.

Dimensions and Specifications - publications that include basic illustrations of the vehicle's structure, and provide dimensions for length, width, and height to various reference points throughout the vehicle. They allow the technician to compare the collision damaged vehicle to published specifications.

Gauging - a method used to determine structural alignment as it pertains to centerline, level, and datum. Gauging includes the use of centerline gauges suspended from vehicle reference points and/or other structural locations.

Genesis - an electronic computer measuring system that measures multiple reference points simultaneously, provides dimensional graphic displays of structural damage and produces updates of vehicle measurements every few seconds. The system combines computer data processing, laser light, and proven principles of structural damage analysis to provide needed information quickly and easily.

High or Low Area - refers to vertical misalignment relating to any of the vehicle's three (3) sections.

Hinge Pillar - the structural member where the door hinges are attached.

Horizontal Bars - the parts of the datum/centerline gauge or strut tower/upper body gauge used to determine vertical misalignment. The bars are termed "horizontal bars" because when suspended below the vehicle, they are parallel to the horizon.

Lateral Misalignment - refers to any sideways misalignment of the vehicle's structure.

Lower Ball Joint Length - the forward position of the lower ball joint.

Measuring - comparison of width, length, and height measurements with specifications or a comparison of measurements from one side of vehicle to the other.

Multiple Damage - various types of structural misalignment and damage existing simultaneously in one vehicle.

Out-of-Level Gauge - a gauge that is not parallel with adjacent gauges indicates vertical misalignment of the structural components to which it is attached.

Point-To-Point Measurement - a method of measuring used to determine the distance from one point to another. It is accomplished by measuring directly from one point to another without regard to the vehicle's centerline or datum plane.

Radiator Support - the structural member or panel that supports the radiator, air conditioning condenser, etc.

Rail Length (Short Rail) - a side rail that is shortened (buckled, folded) by force of the collision.

Reading Centerline - a term referring to the process of detecting any lateral (sideways) misalignment in the front or rear sections. Process varies as per measuring equipment used.

Reading Datum - the process of comparing the front or rear section measurements to center section measurements to determine if the end sections are at the correct height.

Reading the Gauges - an expression used to describe the process of viewing gauges, comparing them with one another for misalignment, and relating that information to the actual misalignment of the vehicle structure.

Reference Points - specific points on a vehicle's structure as established by the manufacturer.

Sag (down-at-the-cowl) - structure appears to be misaligned downward at the cowl area, but the suspension area is high when compared to the vehicle's center section.

Specifications - show numerical references on vehicle graphic representing vehicle specifications taken from Genesis Data Base.

Sway - a term used frequently to describe centerline misalignment. There are three other types of centerline misalignment that might appear to be sway but are not. These are Diamond, Short Rail, and the pendulum effect.

Three-Section Principle - dividing vehicle into sections. Because of a vehicle's design, it reacts as three separate sections during a collision.

Twist - a high or low area in the center section that affects overall structural alignment.

Unibody Vehicles - a method of welding the vehicle's structural components, as well as many of its cosmetic panels to form a rigid unitized Structure. This type of construction does not use a separate frame and the suspension and drive-train components often attach directly to the unibody structure.

Universal Gauge Measuring System - consists of various types of diagnostic equipment. It provides the repair technician with a simple, systematic method of determining if any Structural misalignment has occurred as a result of a collision.

Universal Measuring System - mechanical system that sets up quickly, fits all racks and remains fixed throughout the repair process. This ladder-style assembly consists of high-grade aluminum extrusions that position lengthwise under the vehicle. The system's varied attachments and accessories measure up to 16 lower body points simultaneously. Optional accessories allow the measuring of up to 18 upper body points. System is complemented by a comprehensive set of vehicle specification sheets.

Upper Body - area of vehicle above frame and floor pan.

Vertical Misalignment -refers to any up or down misalignment of the vehicle's structure.

Visual Inspection - the process of inspecting the vehicle's Structure for any visible signs of structural damage without the use of any measuring equipment.

Windshield Pillar - the structural member that ties the roof to the cowl area. While this component appears to be an extension of the hinge pillar, it is considered a separate part.

"X" Measurement - a comparison of diagonal measurements made from like points on both sides of the vehicle.

Steering & Suspension Alignment

"A" Arm - a term used to describe a type of control arm that attaches to the vehicle at two (2) separate points, and whose basic shape somewhat resembles an "A".

Belting - the step in the assembly of a tire, which involves the positioning of the belts in relation to each other and to the beads of the tire.

Camber Change - a condition in which the camber angle changes as the suspension travels up and down. A certain amount of camber change is normal for almost all independent suspension systems.

Center Link (Relay Rod) - the piece of steering linkage to which the inner tie rod ends are connected in a parallelogram type system.

Control Arm Type Suspension - a type of suspension system using upper and lower control arms.

Curb Height - the height from the road surface at which the vehicle was originally designed to set.

Drivetrain - the driving components of the vehicle, which includes the engine, the transmission or transaxle assembly, and the driveshaft or drive axles.

Front End Geometry - the position and relationship of suspension components to each other and to the vehicle.

Handling Characteristics - the specific way a vehicle reacts to various driving situations such as accelerating, braking or cornering.

Idler Arm - the arm attached to the frame or structure of the vehicle that supports the end of the center link opposite the pitman arm.

Independent Suspension - A broad term used to describe all the suspension systems in which both wheels, on the same end of the vehicle, are not attached to one, common, rigid axle. In these systems, each wheel is free to react to any variation in the road surface without affecting the wheel on the opposite side of the vehicle.

King Pin - a heavy solid pin used, instead of ball joints, to attach the spindle assembly to the axle. The king pin is also the axis around which the spindle assembly pivots during cornering.

Lateral Pull - a condition in which the vehicle will consistently veer to one side of the road unless the driver corrects for the condition by forcing the vehicle to maintain a straight ahead position.

MacPherson Strut - a strut type suspension named after the inventor.

Non-symmetrical - a situation in which a vehicle component is designed to be at a different height, width, or forward position than the same component on the opposite side of the vehicle.

Pitman Arm - the arm connected to the output shaft (pitman shaft) of the steering gear and is attached to the center link (relay rod) of the steering system. It is this arm, which

forces the steering linkage to move side to side when the steering is turned.

Radius Arm or Rod - a device used to connect the outer end of the axle or lower control arm to the vehicle's frame or structure. It is used to control the forward position of the axle or control arm.

Ride Height - the actual height the vehicle's structure sets above the surface it is resting on. Ride height is controlled by the vehicle's suspension.

Scuffing - a term used to describe the tire wear which is caused when a tire is slid sideways on the road surface.

Stabilizer Bar (Sway Bar) - a spring steel bar attached to both sides of the suspension and the frame, or structure, of the vehicle. Its purpose is to minimize the amount of lean a vehicle experiences during cornering.

Static Position - the position of the suspension or steering components when the vehicle is not in motion.

Steering Geometry - the location and angle at which steering components and linkage are positioned in relation to the rest of the vehicle and, in particular, the front suspension.

Strut Shaft - the hard chrome inner shaft that telescopes in and out of the strut assembly as the suspension travels up and down.

Strut Type Suspension - a suspension system that uses a shock absorber type assembly to not only dampen the action of the suspension, but also to act as the upper attachment and pivot point of the suspension.

Suspension Control Points - the points where the suspension components attach to the vehicle structure.

Suspension Loading - the amount of the vehicle's weight a suspension unit is supporting or the amount of downward force a suspension system is offsetting.

Symmetrical - a method of design in which corresponding components of the vehicle's structure, suspension, or steering system are positioned at identical locations on both sides of the vehicle.

Tie Rod - the steering linkage component that connects the steering arm located at the wheel, to the center link or rack and pinion assembly. Tie Rod End -The ball and socket assembly attached to both ends of the tie rod.

Toe Change - a condition where the straight-ahead position of the front wheels (toe) changes as the suspension travels up or down from the static position.

Tolerance - the amount of variation from a specified standard that is considered acceptable.

Torque Steer - the tendency of a vehicle to pull to one side or the other during acceleration or deceleration.

Tracking - the ability of the vehicle's rear wheels to follow directly behind the front wheels as the vehicle travels in a straight line. Tracking is controlled by the parallel alignment of the rear wheels to the vehicle centerline.

True Vertical - Straight up and down: having no inward, outward, forward or rearward angle.