Verifacts Guild 21 Webinar
Mike Anderson Collision Advice
In today’s workshop, we will not discuss any issues that would violate antitrust guidelines. Surveys of prices, discounts and costs are permissible, but only under strict guidelines and only if they are not part of a conspiracy to fix prices or to otherwise restrain trade. Remember, the prices charges must be calculated and determined by the business owner alone. These prices should take into account the costs of doing business and include allowances for reasonable profit.

All content of this program is based on standard economic and management principles. Profit margins, labor rates, etc., used in this presentation are to be taken as examples only. The intent of this workshop is to provide attendees with basic human resources management skills that will enable them to determine their own individual rates, profit percentages and other operation aspects of their businesses strictly on an individual basis, using generally accepted management principles.
So, How did we get here ……..

While Self Driving Vehicles get all of the attention in the media. …..
The primary focus of the OEM’s are as follows:

- Prevent Fatalities
- Minimize Bodily Injuries
- Improve Fuel Economy
- Comfort Features

According to the World Health Organization, 1.24 million people die in traffic accidents each year. On a global scale, traffic fatalities continue to increase steadily and are expected to become the fifth leading cause of death by 2030, unless countermeasures are implemented.

***According to the National Safety Council, traffic deaths increased 6 percent to 40,200 — the first time since 2007 that more than 40,000 have died in motor vehicle crashes in a single year
We have gotten there faster than they predicted..... !!!!!!

4: Accidents (unintentional injuries)

- Deaths: 136,053
- Rate: 42.7
- Age-adjusted rate: 40.5
- Percentage of total deaths: 5.2 percent

Accidents, also referred to as unintentional injuries, are at present the 4th leading cause of death in the U.S. and the leading cause of death for those aged 1-44.

Possible prevention measures

By their very natures, accidents are unintentional, but there are many ways to reduce the risk of accidental death and injury. Some key components of accident prevention include those focused on road safety, such as seat-belt use, and improved awareness of the dangers of driving while intoxicated.

5: Stroke (cerebrovascular diseases)

- Deaths: 133,033
### Main sources of traffic accident fatalities

<table>
<thead>
<tr>
<th>Vehicle-on -vehicle collisions</th>
<th>Traffic lane departures</th>
<th>Poor night visibility</th>
</tr>
</thead>
</table>

### Toyota's Efforts

The Toyota Safety Sense active safety package was developed focused on three items to help prevent these types of incidents.
Recently I asked several OEM’s……?
The #1 Answer was......
Liability

- Liability is the biggest issue that keeps OEM’s awake at night
- Let me tell you a story…
  - Toyota with Blind Spot Monitor (BSM)
  - Repaired rear quarter panel
  - Repair was off by 7 degrees
  - OEM documentation said couldn’t be off by more than 5 degrees
2015 Toyota Avalon

Scan Readings

Initial Recorded Faults:

SRS Airbag
- B1801 Open in Driver squib circuit
- B1811 Open in Driver squib dual stage 2nd step circuit

Blind Spot Monitor Master
- CIAC1 Master module horizontal axis misalignment

Snapshot Data

- Freeze Frame Data not available.

Blind spot module indicating horizontal axis is misaligned: 5 degrees max deviation.
2015 Toyota Avalon

C1AC1 - Master Module Horizontal Axis Misalignment

DESCRIPTION
This DTC is stored when the angle of the blind spot monitor sensor LH deviates more than the allowable range from the horizontal axis.

HINT
If drum tester such as a speedometer tester, brake/speedometer combination tester or chassis dynamometer is used with the blind spot monitor main switch (warning canceling switch assembly) is on.

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1AC1</td>
<td>When the blind spot monitor sensor deviates 5 degrees or more from the horizontal axis when the system is activated.</td>
<td></td>
</tr>
</tbody>
</table>

INSPECTION PROCEDURE

NOTICE:
When checking for DTCs, make sure that the blind spot monitor main switch (warning canceling switch assembly) is on.

PROCEDURE

1. CHECK INSTALLATION CONDITION
   (a) Check the installation condition of the blind spot monitor sensor LH. See Collision Avoidance and Parking Assist Systems > Initial Inspection and Diagnostic Overview > Operation Check

HINT
Take the appropriate action in accordance with the result.

NEXT -- Continue to next step.

2. PERFORM BEAM AXIS CONFIRMATION

5 Degrees MAX Deviation

Requires Toyota Specific Target
2015 Toyota Avalon

- The center of triangular pyramid is the reference point for the setting position and angle.

> Set the reflector as shown in the illustration so that its center of triangular pyramid faces the blind spot monitor sensor.
> Perform the operation as precisely as possible.

(c) Perform the blind spot monitor beam axis display.

1. Connect the Techstream to the DLC3.
2. Turn the engine switch on (IG).
3. Turn the blind spot monitor main switch (warning canceling switch assembly) on.
4. Turn the Techstream on.
5. Enter the following menus: Body Electrical / Blind Spot Monitor Master or Blind Spot Monitor Slave / Utility / BSM Master beam axis display or RSM Slave beam axis display.
6. Check the results displayed for the BSM beam axis display.

<table>
<thead>
<tr>
<th>Allowable Range:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Blind Spot Monitor Sensor LH (Master)</th>
<th>Blind Spot Monitor Sensor RH (Slave)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle</td>
<td>-3.0 to +3.0 °</td>
<td>-3.0 to +3.0 °</td>
</tr>
<tr>
<td>Distance</td>
<td>2.0 to 3.0 m</td>
<td>2.0 to 3.0 m</td>
</tr>
<tr>
<td></td>
<td>(6.56 to 9.84 ft)</td>
<td>(6.56 to 9.84 ft)</td>
</tr>
</tbody>
</table>
Lines of code

- Boeing 787 – 14 million lines of code
- F-35 Fighter Jet (2013) – 24 million lines of code
- Large Hadron Collider – 50 million lines of code
- Avg. high-end car – 100 million lines of code

This code controls everything from tire pressure to collision avoidance, braking, backup, steering and other systems

http://www.informationisbeautiful.net/visualizations/million-lines-of-code
These 6 manufacturers represent 61% of the market share!

SOURCE: EDMUNDS.COM
Quite often I get asked well what about the other OEM’s?
Volkswagen Scan Tool Requirements

- Electronic Vehicle Systems

  Safety related system such as: ABS/Electronic Differential Lock (EDL), Airbag, electronically regulated vehicle systems; Electro-mechanical, Electro-hydraulic steering and other driver assistance systems must be queried for fault codes that could possibly be stored, using the vehicle diagnostic tester. If faults were stored in the Diagnostic Trouble Code (DTC) memory for the system mentioned, then these systems must be serviced according to the specifications in the repair manual. After performing repairs, check the fault stored in the DTC memory of the affected system again, to make sure that proper function can be ensured again.
Procedure for Electronic Control Units after Accident Repairs

It is only necessary to install new electronic control units after an accident where at least one of the following conditions is present:

- The housing is obviously deformed or damaged.
- The support surface or bracket is deformed, there is no visible external damage to the unit itself.
- The connector is damaged or corroded.
- The functional check or the unit self-diagnosis procedure indicates the fault "Control unit defective".

When electronic components, e.g. ABS control module, have been removed for the purpose of making repairs and are then reused, perform a functional check after installing as described in the existing technical literature, e.g. V.A.G self-diagnosis procedure.
Electronic Control Modules, Handling After Collision Servicing

Electronic control modules only need to be replaced after a collision if the following condition is fulfilled:

- The function test results in the message “Control module faulty”.

If electronic components, for example, ABS control modules, were removed and then reused, these are to be checked for function according to the available documentation after installing. To do this, check all DTC memories with a tester and correct any possible malfunctions present.
Who Pays for What Survey

The percentage of repair facilities that said they research OEM procedures “all of the time” or “most of the time” increased slightly compared to last year.
Quite often I get asked…… ???

- Why do I need to research every car if I fix the same type of vehicle on a regular basis…

- Did you know that one OEM changed the way you install the bedside on their vehicles four times last year? YES 4 TIMES!!

- Just because you did it that way yesterday doesn’t mean it is the same way today… Procedures change as more information becomes available!

For example………………
Ford requires Roof replacement and front and rear glass removal
**OEM Specific panel adhesive, and detailed list of necessary R&I operations.**

<table>
<thead>
<tr>
<th>Quarter Panel - Coupe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Special Tool(s) / General Equipment</strong></td>
</tr>
<tr>
<td>Resistance Spotwelding Equipment</td>
</tr>
<tr>
<td>Auto Body Saw</td>
</tr>
<tr>
<td>8 mm Drill Bit</td>
</tr>
<tr>
<td>MICROMAG Welding Equipment</td>
</tr>
<tr>
<td>Spot Weld Drill Bit</td>
</tr>
<tr>
<td>Locking Pliers</td>
</tr>
<tr>
<td><strong>Materials</strong></td>
</tr>
<tr>
<td>Metal Bonding Adhesive TA-1</td>
</tr>
<tr>
<td>Sealant Sealer TA-2</td>
</tr>
<tr>
<td>Plastiflex Flexible Foam Repair - 121</td>
</tr>
</tbody>
</table>

**Removal**

1. If required, dimensionally restore vehicle to pre-accident condition.
2. Remove the following items:
   1. Refer to: roof panel.
   2. Refer to: front door.
   3. Refer to: luggage compartment lid.
   4. LH side
      - Refer to: fuel filler door assembly.
   5. LH side as equipped
      - Refer to: fuel tank filler pipe.
   6. Refer to: quarter panel molding.
It’s Not just about the scanning….
8. Observe the lithium-ion high voltage battery for five days in the vehicle. Check the temperature of the lithium-ion high voltage battery regularly, at least two times a day, using a temperature measuring device (for example Digital Thermometer - VAS6519). Inform the high voltage expert of the lithium-ion high voltage battery condition on a regular basis.

9. If the condition of the lithium-ion high voltage battery does not stay constant, extend the quarantine five more days. Return to point 8.

10. When the condition of the lithium-ion high voltage battery is constant, the following applies:

10.1. The high voltage expert comes on site.

10.2. The high voltage expert escorts the transport from the quarantine space to the work area in the workshop.
Question: Is there anything special to do when an Audi high voltage vehicle must be brought into the paint shop?

Answer: The drying time for commercial paint repair work, depending on the material and the manufacturer, between 30 and 60 minutes at 60 °C (140 °F). Normally the temperature in the drying rooms is 80 °C (176 °F).

Audi high voltage vehicles are equipped with a powerful lithium-ion battery. This type of battery is functional only up to 55 °C (131 °F). The cells can get damaged when the temperature goes above 70 °C (158 °F).

In order to not exceed 70 °C (158 °F), do not leave an Audi high voltage vehicles longer than 60 minutes in the paint drying cabin.

If the materials being used for the repair need a drying time longer than 60 minutes, then find an alternative method to dry them such as infrared heat. Refer to Audi Paint Manual.
Audi Q7 2007 ..... It is NOT just about scanning...

2.1 Rear Bumper Overview

⚠️ Caution

On vehicles with lane change assist (Audi side assist), observe the following.

If rear bumper is removed and re-installed or changes are made to bumper, lane change assist (Audi side assist) calibration is necessary. Refer to ➔ Electrical Equipment; Rep. Gr. 96; Lane Change Assistance.
Audi Q7 2007

Crossmember, Removing and Installing

**Caution**

On vehicles with distance regulation (ACC), observe the following:

- If impact member is removed and installed or changes are made to ACC bracket, distance regulation adjustment must be performed. Refer to Suspension, Wheels, Steering: Rep. Gr. 44 + Adaptive Cruise Control.
2012 VW Passat NMS

- A plastic repair may not be performed in this area in a vicinity of minimum dimension $-x- = 25$ cm.

- Spot repair of the area of the control modules (lane change assistance) -1- is not permitted.

2.11 ACC - Adaptive Cruise Control

- On vehicles with ACC, the trim in the right cover section of the front bumper must not be painted if paint repairs or component replacements are performed. The ACC system is located behind this section therefore a coat of paint would destroy its functionality.

- The cover for the distance regulation sensor in the bumper grille is composed of radar-penetrable material. The cover is heated to avoid functions being restricted from snow or ice.

- All changes to the surface such as additional painting, bonding and other supplementary applied objects can cause malfunctions.
My friend’s, It is NOT just about the Scanning !!!

• Recalibrations

• Re Initializations

• Reprograming

• Bumpers – Sensors – repairing – Refinishing

• And so much more ….
Other things to consider that require a Scan Tool...

- Initializing a check valve to bleed a coolant system.
- Test Driving a vehicle above 17 mph for 2 miles in a straight line for a Blind Spot Monitor.
- Running the window up and down twice to reinitialize the pinch protection on the window when you replace a door.
- How do you know if the Hands free is working, how do you know if the Adaptive Cruise Control is working, how do you know if …. 
Remember......
We Don’t Know what we don’t Know !!
Proceed with Caution!
Nissan Position Statement on Bumper Fascia Replacement with Sonar

Many electronic sonar sensors in front and rear bumper fascia are considered to be part of this Nissan Safety Shield Technology. These sensors are engineered to be in very exact positions within the bumper fascia, and if not properly installed, may not function as originally intended. For this reason, Nissan North America DOES NOT approve the use of aftermarket, reconditioned, or recycled bumper fascia.

In contrast with original Genuine Nissan bumper fascia, aftermarket bumper fascia may:

1. In some cases, non-OEM fascia come with no pre-drilled holes for the sensors, relying on the shop technician to cut the holes using a rough template. This may lead to instances where the non-OEM bumper does not match the original Genuine Nissan bumper holes.
2. In some cases, build specifications are slightly different on aftermarket bumper fascia than on Genuine Nissan fascia, which may also cause issues with sensor alignment or performance.

Parts Warranty

Nissan North America’s New Vehicle Limited Warranty, and Limited Warranty on replacement parts do not apply to any parts other than Genuine Nissan original equipment parts.

For additional collision information: http://collision.nissanusa.com
Honda Lane Departure System

**BSI (Blind Spot Information)** - Uses radar mounted at the rear quarter on each side of the vehicle.

**FCW (Forward Collision Warning)** - If the vehicle is equipped with ACC, the FCW will also use the radar. If the vehicle does not have ACC, the FCW and LDW both use the camera mounted at the front windshield.

**LDW (Lane Departure Warning)** - Uses a camera mounted at the front windshield.

**LW (LaneWatch)** - Uses a camera mounted in the passenger's side mirror.

When you troubleshoot the various systems and remove and reinstall, or replace components, you'll need to do the aiming procedure. Use the following tables to determine which system the vehicle is equipped with, then go to TOOL AND SYSTEM INFORMATION.
Did You Know…

**2014 Jeep Grand Cherokee Blind Spot Monitor**

If the vehicle has experienced any trauma in the outboard area at each end of the rear fascia behind the rear wheel openings where the sensors are located, even if the fascia is not damaged, the radar sensor may have become misaligned. A misaligned radar sensor will result in the BSM system not operating properly.

The blind spot sensors and control circuitry cannot be adjusted or repaired. If a sensor is damaged or ineffective, it must be replaced with a new unit. The sensor module software is flash programmable. The mounting bracket for each sensor is serviced only as a unit with the rear bumper fascia.
Did You Know…

2014 Ford Fusion Blind Spot Monitor and Cross Traffic Alert

NOTE: There should be no bumper stickers or body filler material used on the rear side bumper cover in the vicinity of the SODL (side obstacle detection control module LH) or SODR (side obstacle detection control module RH).
Did You Know...

Did you know you have to remove the windshield on a Volkswagen Touareg to remove the fender?

Outer Body Structure Design

Fenders

The fenders on the 2011 Touareg are made from steel that is .65 mm thick. This is a departure from the previous model where the fenders were made from plastic. It is important to note that during fender removal, the upper fender bolt may be hidden by windshield adhesive. If this is the case, the windshield must be removed to remove the fender. The fenders are secured on the sides with retaining plates, specifically used for pedestrian protection.

On diesel vehicles, the auxiliary heater must first be removed before the fender can be removed. Also, parts of the tire pressure monitoring system are on the fender, so do not cut any wires to remove the fender. The fender on the right side has the windshield washer fluid reservoir fitted beneath it.

(Figure 5: The fender removal process may require removal of the windshield if the upper bolt cannot be accessed.)
ADVANCED TECHNOLOGIES.
PASSIVE SAFETY SYSTEMS.

• ACSM- Crash Safety Module (Advanced Crash Safety Module)

• One Lateral and one longitudinal acceleration sensor in the B-pillars (green)

• One airbag sensor to monitor the pressure in each of the front doors (blue)

• One lateral and one longitudinal acceleration sensor in the ICM (yellow)

• One roll rate sensor in the ICM (yellow)

• One vertical acceleration sensor in the ICM (yellow)

• One front sensor on each of the engine supports (red)
The all-new Ford F-150 offers a host of technologies new to pickup trucks to help owners be more productive and feel more confident.
Some Final Thoughts!!
Nace Panel Discussion

Participants:
- 2 Insurers
- 6 OEMs
Do You Have Permission?
Call To ACTION!

- Researching OEM Repair Procedures is Mandatory! IT is NOT optional
- Get the Customer’s authorization before you scan and/or Share the Data
- Just because there is NOT a position statement doesn’t mean the OEM doesn’t say it somewhere! RESEARCH is MANDATORY!
- It is NOT just about scanning!
- Educate your staff! Debrief with them after this call!

Next Call if there is an interest?

Is there a difference between OEM and Aftermarket Scan Tools!
Questions & Answers

Thank you for your time and attention!
For more information on Collision Advice Consulting Services or speaking engagements, please contact:

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Check out Mike’s New Consulting Calendar on our website!
www.collisionadvice.com