



# Parts Committee

## Las Vegas, NV

November 2008



# Alternative Wheel Update



# Disclaimer

Information shared today should not be perceived as an endorsement from either CIC or the CIC Parts Committee.

Presentations are intended to provide updated information so industry stakeholders can make better informed decisions with regard to the subject.



# Speakers

Dan Morrissey - Moderator

Ken Archibald - Independent Test Services

Roger McClellan - Saturn Wheel

Jim Devlin - LKQ Keystone

Dave Barzoff - Automobile Recyclers Association

Gary Ledoux - American Honda



Roger McClellan  
Saturn Wheel - Warren, IN



## Saturn Wheel History & Current Status

- Saturn Wheel was incorporated in 2005. It currently employs 56 people running a 3 shift operation.
- Currently refinishes approx. 300 wheels per day.
- Saturn has refinished 250,000 wheels since conception.
- Currently stocks 9,000 finished wheels in inventory and approx. 11,000 cores to refinish.
- Market outlet: Body Shops, Distributors & Tire Stores. Most of our current distribution is indirect through a network of distributors.



# Saturn Wheel Operation Policy

- Saturn Wheel Company, Inc. strives to provide conforming aluminum wheels for the marketplace and continually improve to meet customer requirements.
  - ◆ This means providing value to our customers by effectively:
    - ◆ Identifying customer requirements.
    - ◆ Maintaining controlled processes to meet the requirements.
    - ◆ Delivering products as requested by the customer.

# Awarded Certificate of Compliance from TRA Registrar Services in June 2008

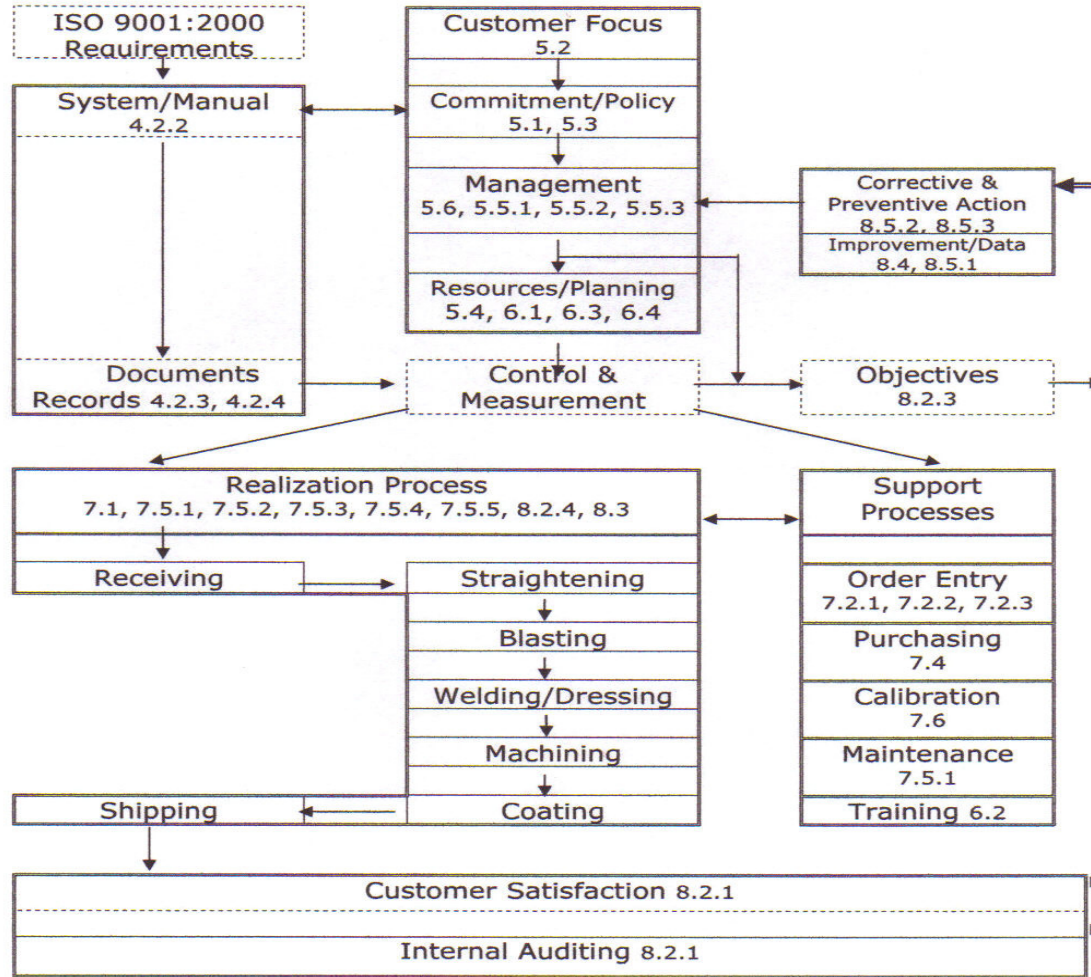


States that Saturn Wheel Complies with all ISO 9001-2000 standards with the quality system established.





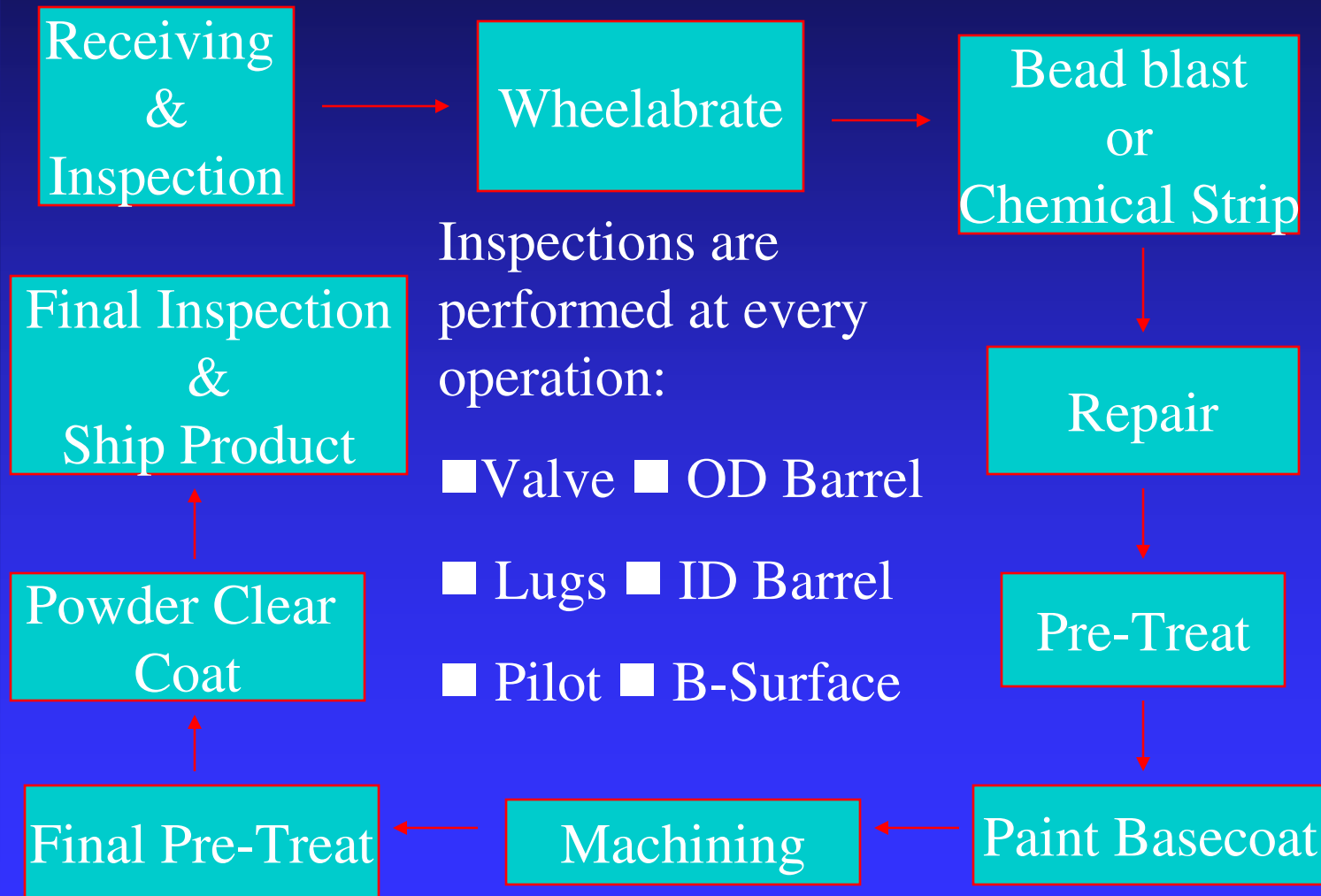
**SATURN WHEEL COMPANY PROCESSES  
(Relationships and interactions with ISO Clauses)**



**CONTROLLED**



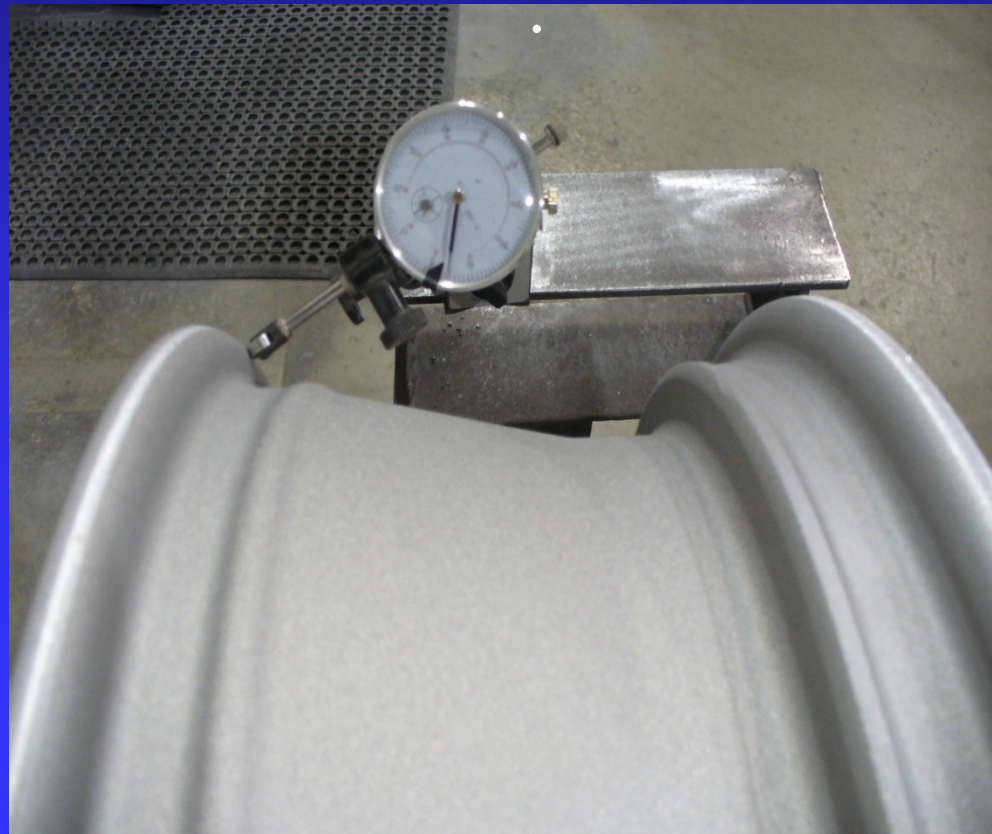
# Saturn Wheel Flow Chart





# Receiving

All incoming cores and restorations are inspected at the beginning of the process to determine reparability, uniformity, and disposition.





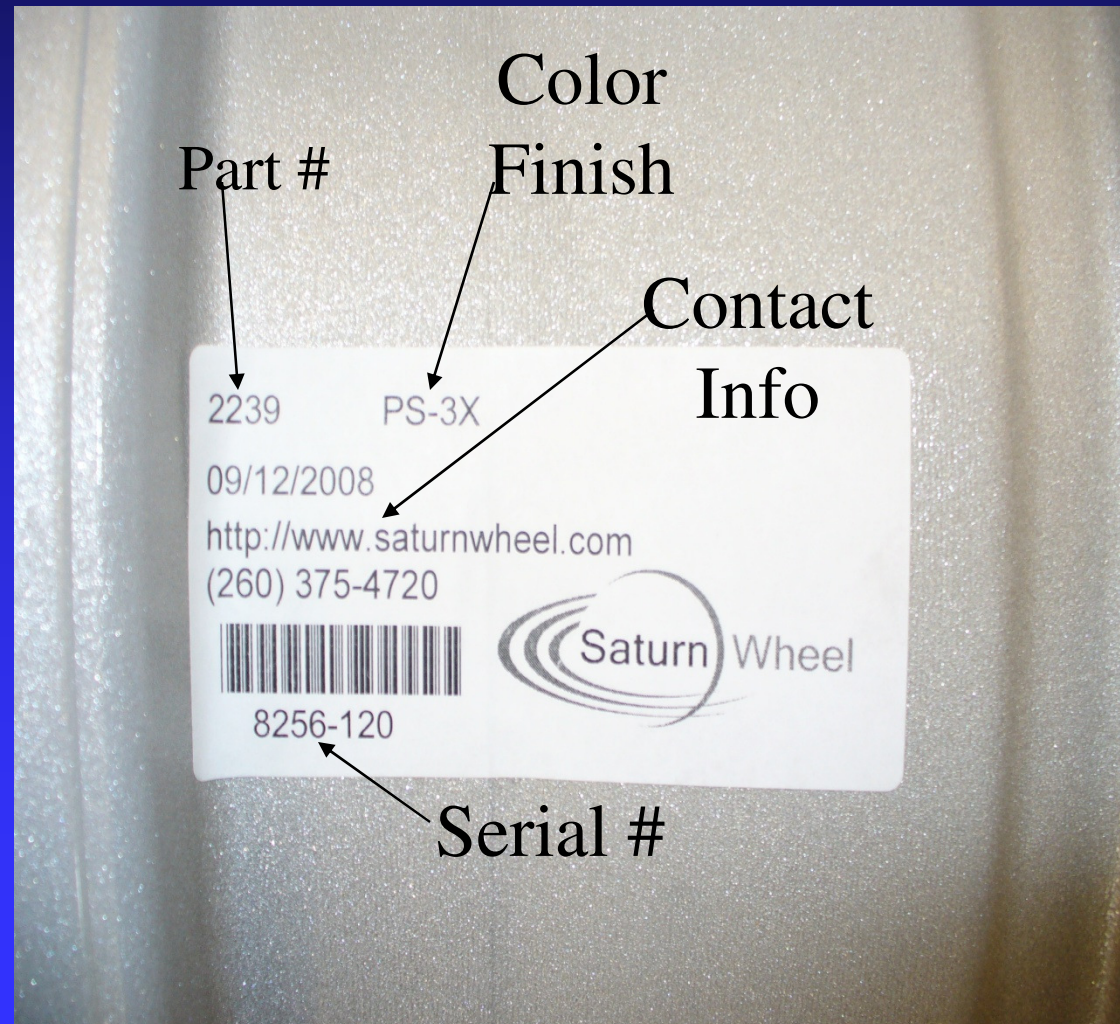
# Wheelabrator and Paint Removal

- All wheels are processed through a wheelabrator utilizing an oxide shot media that pings the aluminum. It is used as a stripping method, while also adding fatigue strength to the surface.
- Any excess paint that did not get removed from the wheelabrator is removed by a non-heated stripping chemical and/or a plastic blast media.





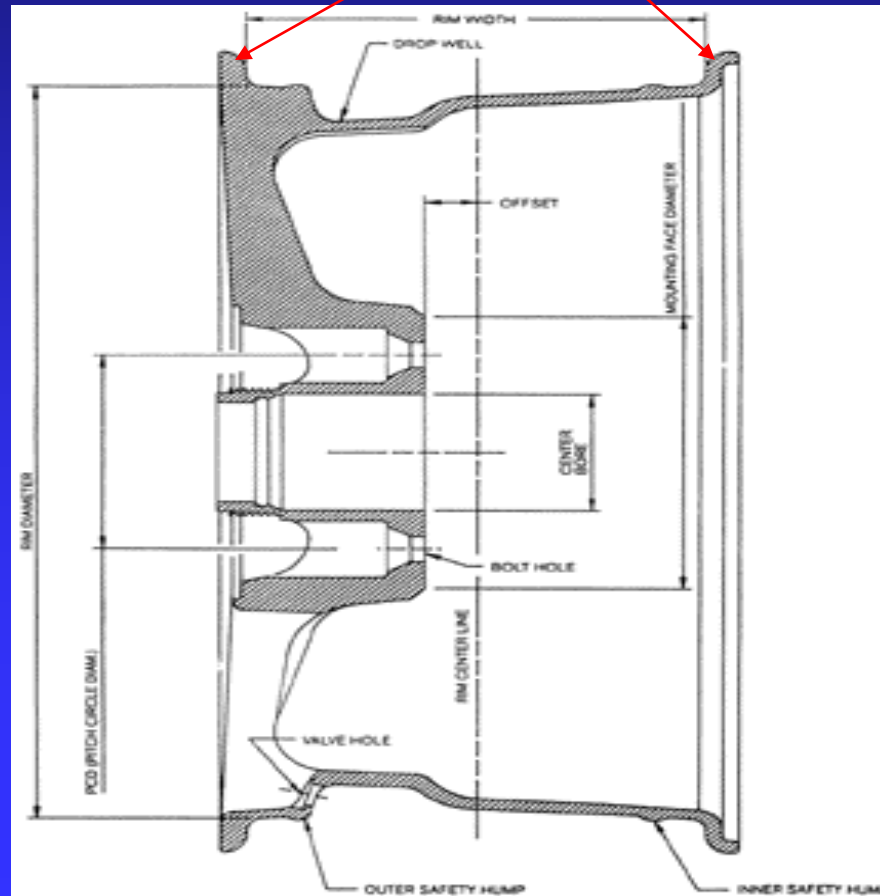
# Permanent Saturn Wheel Identification Label. All labels get clear coat over the top.



# Saturn Wheel Repair Guidelines

## Straightening

Outboard & Inboard flange must be within .015 total lateral runout

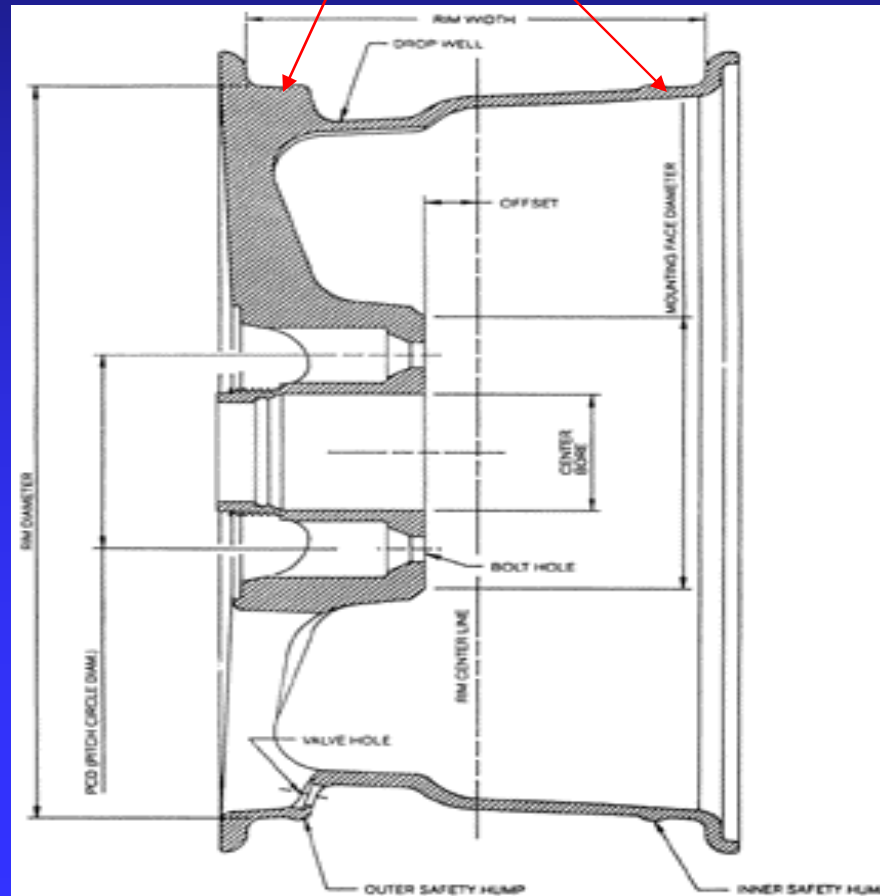


# Saturn Wheel Repair Guidelines



## Straightening

Outboard & Inboard bead diameter must be within .020 total radial runout

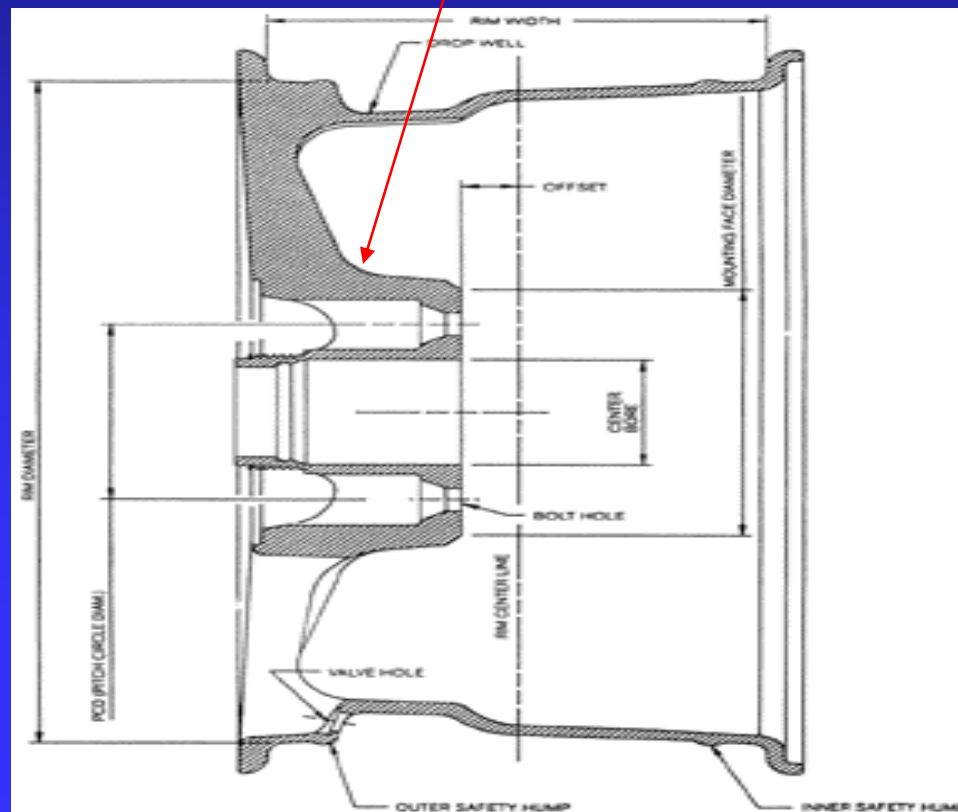


# Saturn Wheel Repair Guidelines



## Straightening

Bent from center is not repairable. This is when the lateral and the radial runout exceeds established limits.



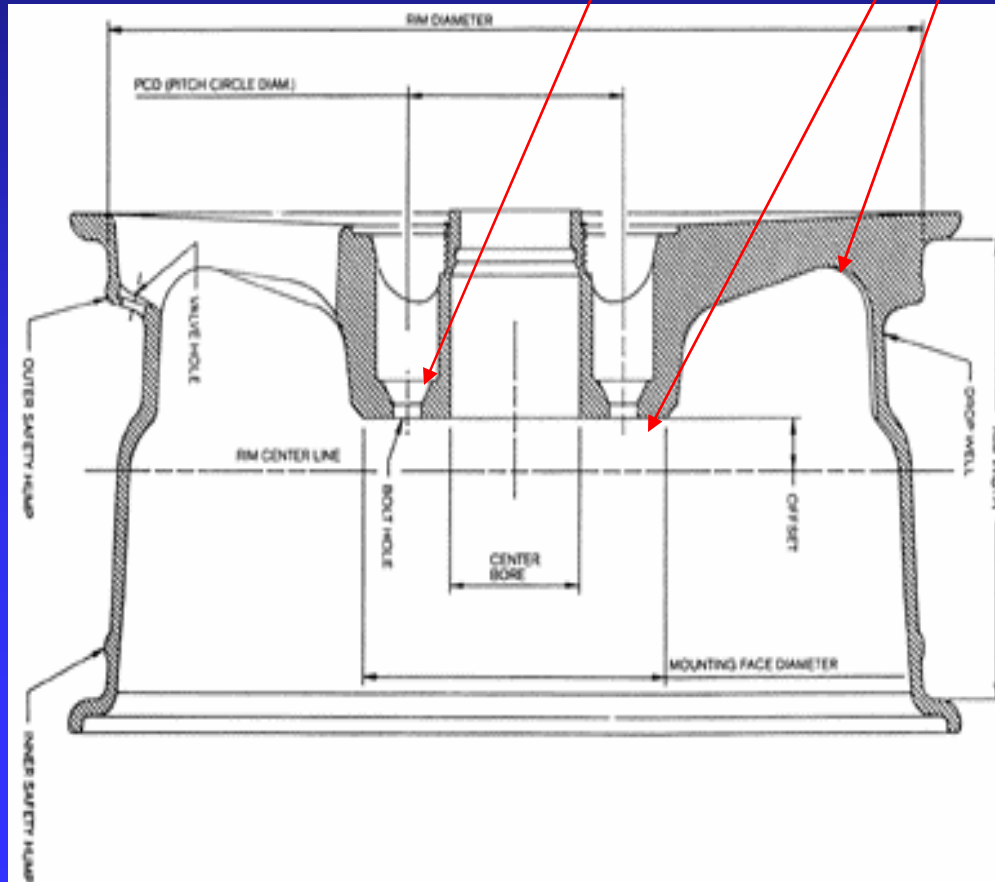


# Saturn Wheel Repair Guidelines



Areas that are non-repairable

Repairs are never permitted in the Lug area, B-Surface or structural Rib area.





# Saturn Wheel Repair Guidelines

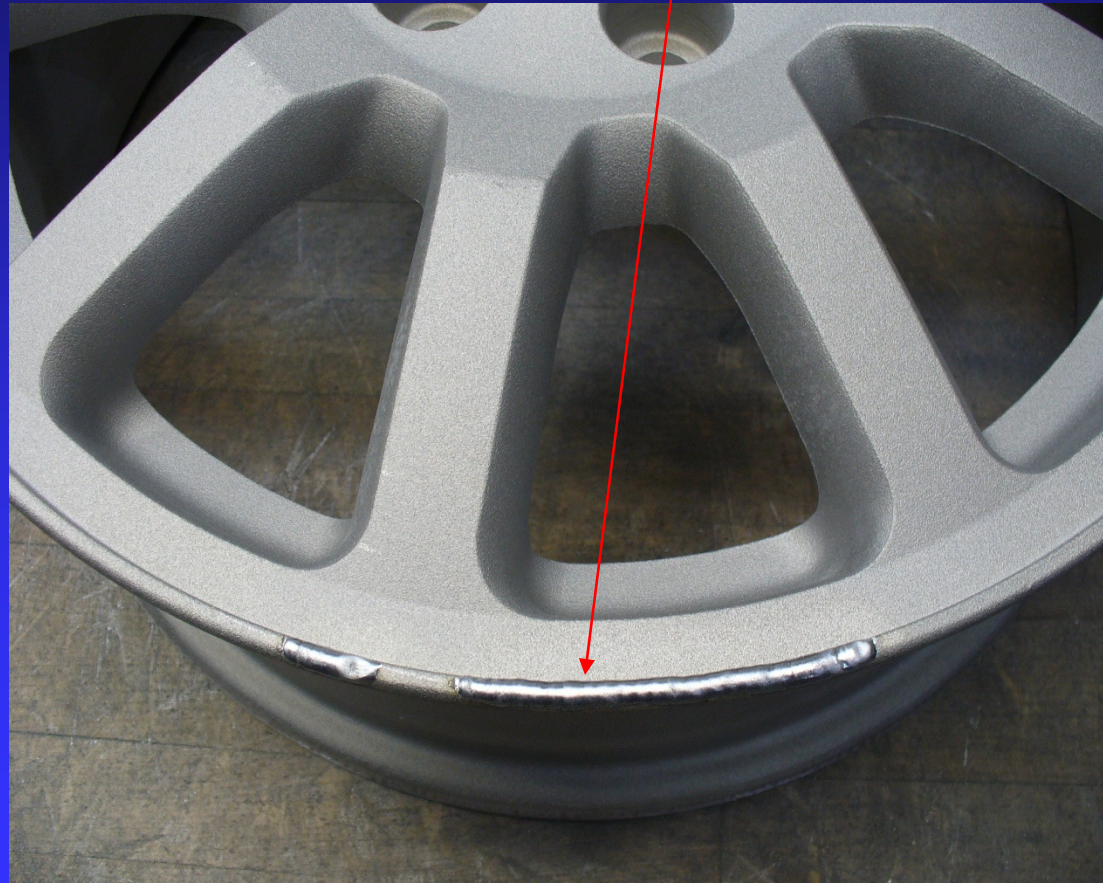
## Welding

- Circumferential cracks that exceed 6" are not repairable. Circumferential cracks less than 6" on the lip and flange can be welded with proper cutout.
- Cutouts on the inboard and outboard flange may not exceed the radius.
- Vertical cracks exceeding the safety hump are not repairable.
- All questionable cracks are inspected with a die penetrate to determine disposition.
- Operators must be certified in TIG welding.



## Welding

Example of a typical lip weld repair using A356 weld rod. 60% of weld repairs fall in this category





# Pre Treat Process

- Soap Tank
- Deoxidizer
- Conversion Coating
- Final RO Rinse

This process is very important for the longevity of the coating and the prevention of oxidation.



# Machining



- All wheels are inspected prior to skim cut, approx. .005 to .010 is removed on machine faced wheels.
- Flange thickness is measured and recorded prior to skim cut.
- Flange thickness is measured again after machining and recorded in a permanent record associated with the serial number.
- **Note: wheels determined to be under specifications are scrapped and removed from the process immediately.**



# Paint Process

- The first coating applied is a base coat using a powder paint primer.
- Second coat is the color of the accent area or the face of the wheel. This could be a powder or liquid depending on color availability.
- The final coat is a durable powder clear coat.
- Wheels are cured at 320° for 20 minutes.
- Oven temp. is crucial as the mechanical properties can be compromised at high temperatures over a period of time.





# Final Inspection and Shipping

- All Wheels are (100%) inspected for aesthetics and any potential defect using visual standards, checking Lug Holes, Valve Hole, OD, ID, B-Surface and Pilot Bore.
- Wheels are packaged using a secure foam pack filler to assure the customer receives product in the condition it was shipped.
- Wheels are checked for proper destination against the order to assure its correct destination.

# 2008 YTD Returns By Defect



## Returns By Defect 2008 YTD

<b>Reason Code</b>	<b>Qty</b>	<b>Percent</b>
Finish	171	0.374%
Color Match	66	0.144%
Bent / Vibration	45	0.098%
Shipping Damage	18	0.039%
Warranty Clear Coat	15	0.033%
Leaker	2	0.004%
	318	0.695%
<b>Total Shipped</b>	<b>45737</b>	



# Questions you should ask before choosing your supplier.

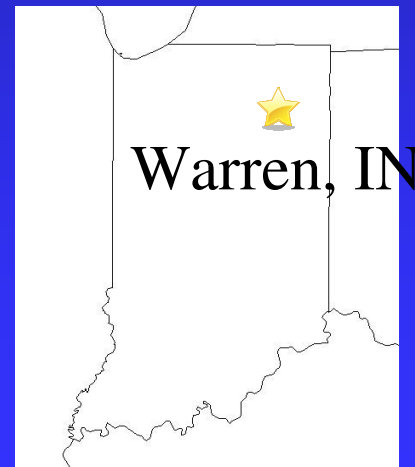


- Do you have a quality management system in place?
- Do you have specified tolerances and parameters in place and are they recorded by serial number?
- Do you have established verifications at key areas of your process that directly effect product performance?
- What is the experience and the background of your staff?
- What is your training program for key areas?
- Criteria for eliminating wheels that should not be repaired?
- Do you have permanent traceability affixed to the part?
- Have you or will you be doing testing to validate that your processes are good?
- Do you have liability insurance?



## Saturn Wheel contact information

- Customer Service – 866-375-4720
- Fax – 260-375-4721
- Web – [www.saturnwheel.com](http://www.saturnwheel.com)





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***OEM Recycled - Aftermarket by Keystone***

**Jim Devlin**  
**Vice President Manufacturing**  
**LKQ Corp.**



# LKQ Corp

Transwheel

01/30/2006

Keystone

10/12/2007

- Transwheel's Process integration is 70% complete.
- All "Key" processes effecting wheel serviceability are complete.
- Projected completion date for integration is April 1, 2009.



# WARRANTY

- All refinishers should fully stand behind all work that they perform on every wheel.
- We are fully responsible for the quality of the material and workmanship we apply to every wheel .



# WARRANTY

- Product marking is critical. All refinished product should be marked with the company name. All re-manufacturers should strive to provide full and easy traceability for all product that they have serviced.



# VISUAL INSPECTION



- Cosmetic refinishing is our primary function.
- Repairability of product is determined using established standards.
  - ◆ Extent and location of defects.
- No repair to the following areas.
  - ◆ Lug
  - ◆ Hub
  - ◆ Pilot Bore (center hole)
  - ◆ Bead Seat (tire bead)
- Approximately 10% of all product presented to us for refinishing is rejected and returned to the customer or scrapped.
- Key questions for all re-manufacturers “What don’t you repair?”





# CRITICAL PROCESS CONTROLS

- Fully “strip” wheels prior to visual inspection.
- Use of diepenitnant on cracks where needed.
- Peening surface (steel shot).
- Machining dimensions (before and after).
- Temperature control for ovens.
- Pretreat (corrosion protection).
- Paint durability testing.
- Cosmetic welding.





# QUALITY

- Does the refinisher maintain an ISO-9002 Certification?
- What is the historical return rate (PPM) for Fit & Function?
- Are employees trained on established standard operating procedures? Is there documentation for training?
- Is customer feedback used to prioritize projects aimed at quality improvement?



# VALIDATION OF PROCESS

- Quarterly Durability Testing.
  - ◆ Rotary
  - ◆ Radial
  - ◆ Impact
- Wheels randomly selected from all facilities.
- We have never experienced a failure in any test.



# SUMMARY

- LKQ has the confidence to stand behind its process based on the procedures that we use and the process controls that we have in place.
- The industry should demand that all refinishers adhere to manufacturing processes that are capable of meeting or exceeding OE wheel testing standards. LKQ has demonstrated that ability.



# Ken Archibald

SAE Member – 25+ years

SAE Wheel Committee Member – 25+ years

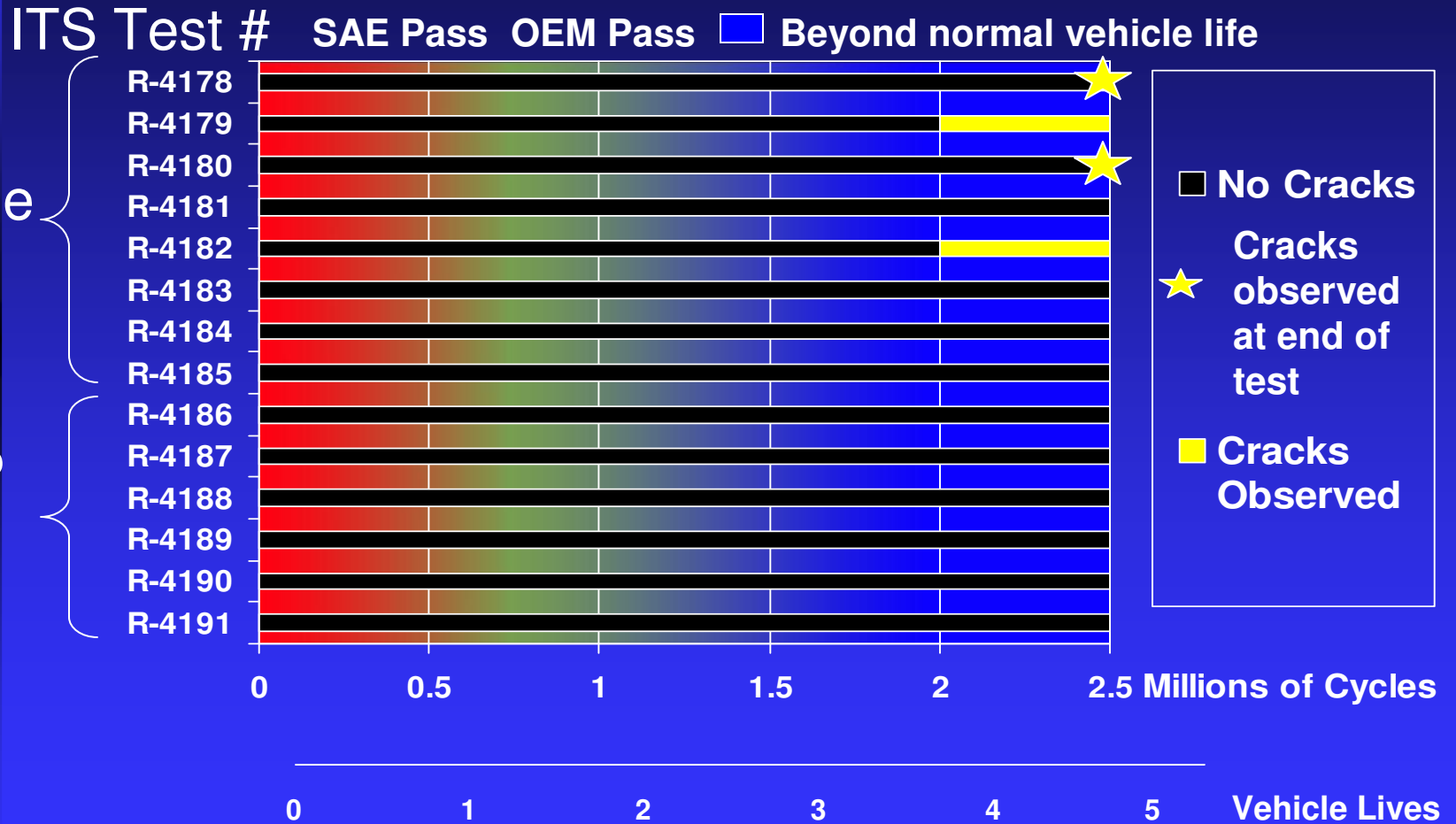
Owner – Independent Test Services



# Transwheel Radial Fatigue Summary

Pristine

TRP



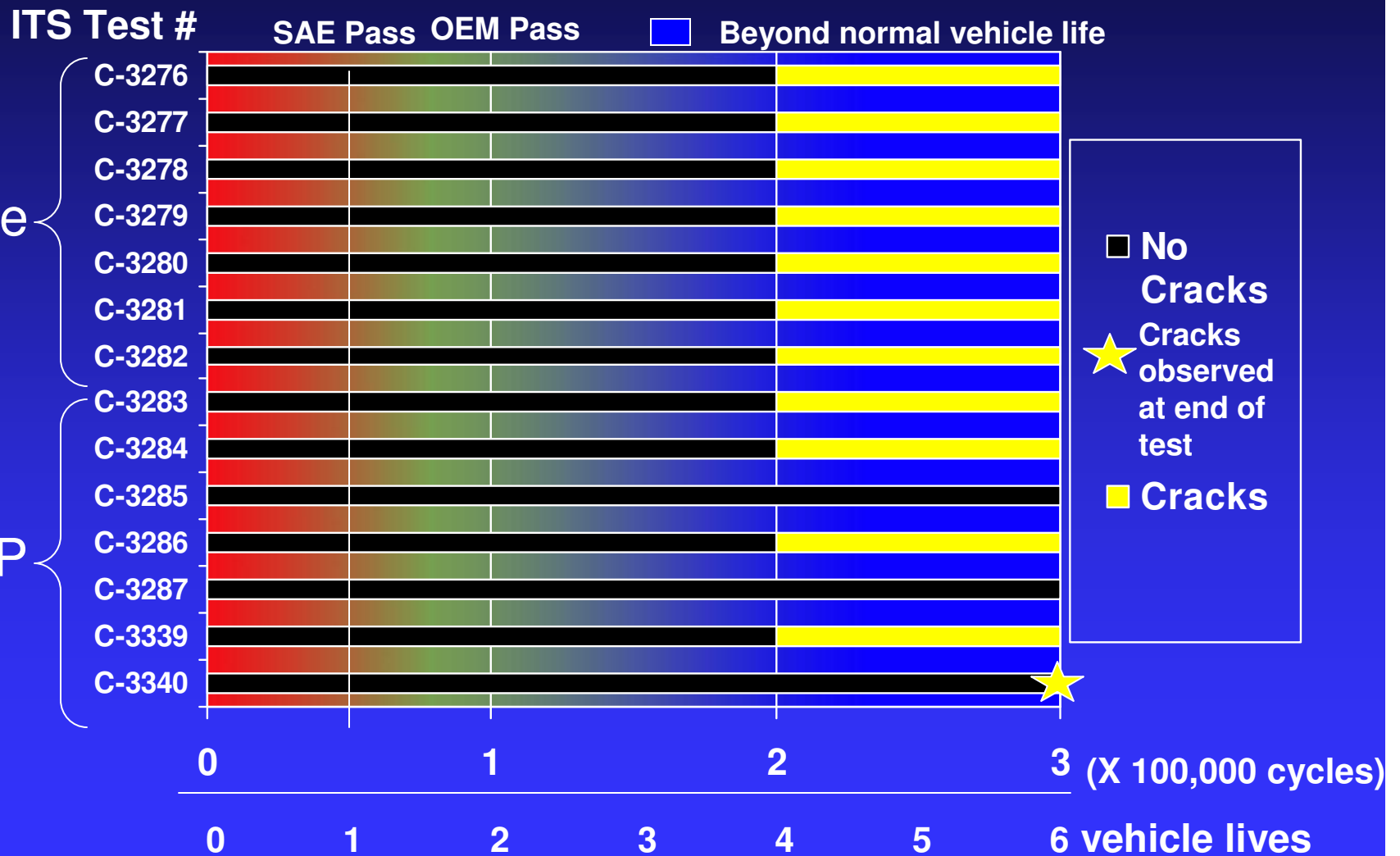
Test conducted per Society of Automotive Engineers SAE J328



# Transwheel Rotary Fatigue Test Summary

Pristine

TRP



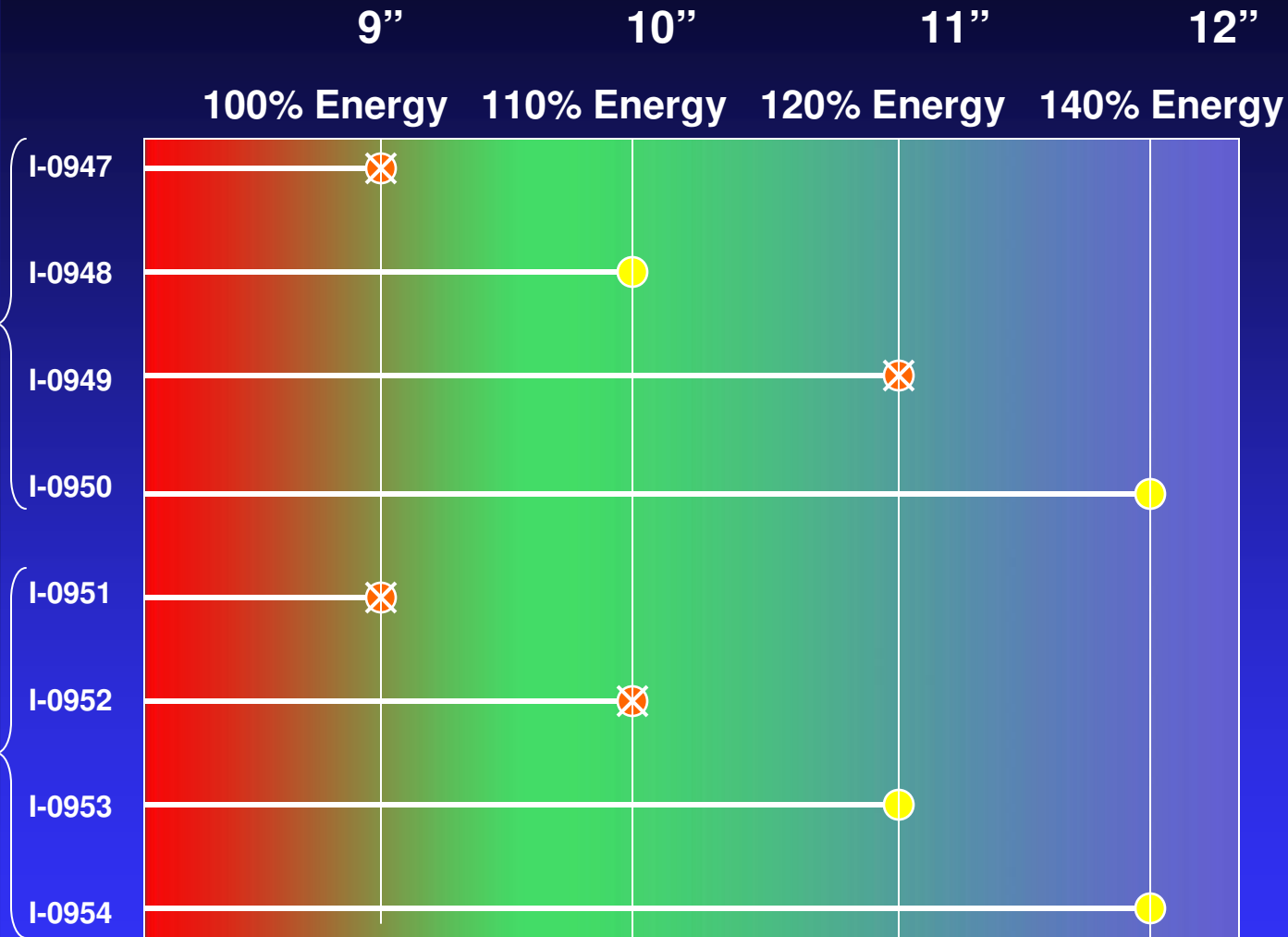
Test conducted per Society of Automotive Engineers SAE J328

# Comparison of Impact Strength



Pristine

TRP



⊗ Meets SAE and OE Crack Criteria

● Meets SAE but not OE Crack Criteria



# ARA Wheel Grading Standards

Dave Barzoff

B Auto Parts - E. St. Louis, IL



# Wheel Inspection, Disclosure and Grading



- Step 1: The wheel must be visually inspected for cracks, bent rim flanges, distortions of wheel pilot holes, wheel nut chamfers or damage or distortion to any functional surface.
- Wheels damaged in any of these functional areas should be discarded.
- No hammering, straightening, or reforming of any kind is allowed.
- A wheel must be warranted to hold air, and that it can be balanced.



## Wheel Inspection, Disclosure and Grading cont.

- Step 2: Wheels are to be inspected by the inventory specialist for corrosion, scrapes, gouges, dents or any other such damage that cannot be corrected by sanding or polishing.



# Wheel Inspection, Disclosure and Grading cont.

- Step 3: Cosmetic blemishes are to be identified using the ARA damage codes.
- Wheels may have no damage but:
- Grade A is a wheel with no blemish.
- Grade B is a wheel having a blemish of one unit or less.
- Grade C is a wheel having greater than one unit of damage.

# Example 1: Grade A wheel.





## Example 2: Grade A wheel.







# Example 1: Grade B wheel.



# Example 1: Grade C wheel.





## Example 2: Grade C wheel.



# Example 3: Grade C wheel.





# Example 1: Failed wheel.



# Example 2: Failed wheel.





# Example 3: Failed wheel.



# Example 4: Failed wheel.





# ARA Website

- <http://www.a-r-a.org>
- Navigate to Standards and Codes.
- ARA wheel grading.





# OE Position

Gary Ledoux

American Honda

Parts Marketing Collision Group



# OE Position / Reman Wheels

## ■ Honda / Acura

- ◆ American Honda Motor co., Inc. does not approve of any repairs of steel or aluminum wheels that involves welding, bending, hammering, straightening, re-machining, reforming, or adding new material.

**Issued June 18, 2007**



# OE Position / Reman Wheels

## ■ Ford

- ◆ Ford Motor company does not approve the remanufacturing/refinishing of steel or aluminum wheels when it involves re-machining, re-plating, welding, bending, straightening, reforming, or adding new material other than cosmetic coating.

Issued June 1, 2004



# OE Position / Reman Wheels

## ■ General Motors

- ◆ GM does not endorse any (wheel) repairs that involve welding, bending straightening or re-machining. Only cosmetic refinishing of the wheel's coatings, using recommended procedures, is allowed.

Issued June 19, 2006



# OE Position / Reman Wheels

## ■ Chrysler

- ◆ Chrysler Corporation does not recommend that customers use “reconditioned” wheels (wheels that have been damaged and repaired) because they can result in a sudden catastrophic wheel failure which could cause loss of control and result in injury or death.



# Liability



# Liability Exposures

- Collision repair facilities are insured under Garage Liability policy.
  - ◆ The property damage or bodily injury that may occur to a third party – or customer, as a result of the collision repair facilities alleged negligent act.
- Umbrella Liability policy
  - ◆ Extends the underlying Garage Liability policy to provide increased limits.



# Garage Liability Coverage



- Products and/or Completed Operations exposures covered.
- Provides coverage to defend and pay on behalf of the shop owner as a result of an alleged negligent act that causes an occurrence that causes property damage or bodily injury resulting from faulty product or improper completed operation or repair.
- Coverage is subject to policy limitations, conditions and exclusions – and unless certain products or certain types of repair operations are excluded – damage resulting from their failure will trigger coverage.

# Garage Liability Coverage



- Coverage is typically written with an occurrence and an aggregate limit so that an individual claim or a number of claims may exhaust the per limits available.
- Exclusions may remove this coverage or remove certain products from coverage – a certificate of insurance should be obtained initially and updated annually certifying coverage is in place.



# Umbrella Liability Coverage

- Products and Completed Operations can be extended from the underlying Garage Liability policy to provide increased limits.
- Coverage in the Umbrella may have some coverage exclusions beyond what is in the underlying policies – typically, the Umbrella policy will extend limits above coverage provide in the underlying policy.



# Umbrella Liability Coverage

- Coverage limits in the Umbrella policy are typically written in denominations of a million – with \$1 million as the minimum.
- Depending upon operational size and profile multiple millions of dollars of coverage may be purchased.
- Certificates of Insurance should be obtained that certify the limits and coverage as provided in the Umbrella for products liability.

# Additional Considerations



- Most business partners or affiliates may require evidence of coverage in this area.
- Business partners will request a Certificate of Insurance to provide evidence of the coverage a collision repair facility has in place.
- Most collision repair facility owners need to obtain proper limits and coverages to satisfy various contractual and business relationships they may have with insurance companies or others with whom they work.

# Additional Considerations



- Collision repair facility owners need to obtain certificates of insurance from their suppliers and business partners to confirm that those organizations have coverage similar if not identical to that provided by the collision repair facility to others.
- Close attention should be given to products liability coverage and limits as provided by parts suppliers.

# Additional Considerations



- A close review of Certificates of Insurance with the agent or insurance provider of the collision repair facility should be conducted upon initial deal with supplier and subsequently each year thereafter as long as the supplier does business with the collision repair facility.





Questions?