

Taiwan Manufacturers Visit

Trip Report

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Background / Overview

I have been fortunate over the last 30 plus years of my life to have worked within the collision repair industry in a variety of roles and capacities which includes starting out sweeping floors at my grandfathers then fathers auto body shops. My progression through the ranks as a technician, shop manager, and owner as well as the various positions I have held in the industry have afforded me the opportunity to see things from a variety of perspectives.

My interest in the aftermarket parts issues began many years ago by my being invited by Jack Gillis to participate on one of the CAPA advisory boards. I spent a couple of years doing that and quite frankly became frustrated due to a wide variety of issues. It wasn't until I started spending a significant amount of time traveling and visiting body shops all over the country that my interest in aftermarket parts was once again peaked.

Through my travels, I saw a great deal of body shops successfully and unsuccessfully utilizing aftermarket parts. What I also saw was an inconsistency in part quality as well as in some cases, an unwillingness on the repairers part to make an effort to try them. I became involved in the CIC Parts and Air Bag Committee in part, because I was tired of hearing debates take place day in and day out about whether or not the parts fit. I felt it was time to stop the complaining and to see whether or not we could truly work together toward resolution of the issues. I can only relate to my own experiences which is that some parts have fit fine and others have not, however, through my travels I have absolutely seen an improvement in the fit over time and perception seems to play a larger role in the fray.

The original "test fit" demonstrations performed during the CIC conferences were set up to establish a forum where people could draw their own conclusions through a simple UNSCIENTIFIC process that was developed to ensure an unbiased and fair fitting be done. Obviously the results of these tests have been varied, therefore exemplifying the issue of consistency (or lack thereof). These tests were never meant to prove one way or another whether the parts were good or not. Shortly after the tests began, Consumer Reports ran their now infamous article while at the same time, there were efforts underway by a vast number of other people and entities such as SCRS. All of this combined seems to have increased the amount of attention toward the aftermarket parts issues.

I have seen a more intense presence from the part manufacturers specifically over the last 2 years and there are what I believe a number of issues that have caused this. I believe some of it is due to the persistence of certain individuals and entities as well as the continued pressure by the insurance industry for repairers to use more aftermarket parts.

When I was presented with the opportunity to travel to Taiwan and see the manufacturers first hand I was very appreciative. I also questioned (as did others) the value of a trip like this but felt it would be worthwhile to see the process and to better understand what impact we could truly have on working through the variety of issues. Additionally, I was impressed that the ABPA was willing to send us to Taiwan on such short notice, which I believe helps to ensure those that might be critical that there was “nothing to hide”.

Equally impressive if not more so, was that such a rigorous agenda was created in that same time frame and we were scheduled to visit 13 locations in 4 short days in addition to having the opportunity to meet with the TABPA board of directors.

Agenda

The following is the schedule of events that took place and a list of the people we met and spent time with. In addition to the names listed below, Phillip Van Huffell and Robert from Entela traveled to the majority of these sites with us. We also met numerous other people but did not obtain business cards from them to reference.

Day 1

Gordon Auto Body Parts

Michael Y. Lee Wilson H.C. Miao Sonny Pon

Yung Shine Industrial Co.

Juh – Fuei Lin Phillip Wang Wei-Yuan Lin K.D. Cheng

Lunch with Yung Shine Co.

Ensure Tech Enterprises

Wu Jsai Chien Tin Nang Lo Jeffrey Liao John Chen

Dinner with Gordon Auto Body Parts

Day 2

We were picked up and driven to Conjoin Key from Taoyuan

Conjoin Key Industry

Jason Chung Alan Chung

Visited Packaging (Box) Manufacturing facility operated by Jason and Alan's brother.

Water King

David Wu

Depo Lighting

Hsu, Shiu-min Judy Lin PoloHsu

Dinner with Depo Lighting

Day 3

Eagle Eyes Traffic

Homy Hsu

TYC Brother Industrial

C.C.Wu

C.K. Lin

Rachael Wu

Ben Tsai

Stanley Y.L. Hsu

Tong Yang Group

Simon Chen

Vincent Chou

Albert Lin

Richard Shiau

Janey Wu

Jacky Chiou

Lunch with Tong Yang Group

Jui Li Enterprise

John F. Lu

Flight back to Taipei

Day 4

TABPA Board Meeting

Auto Parts Industrial

Parkson Jong

Henry Huang

Cristine Chen

Emily Pan

Michael Ou

Dinner and KTV with API

Day 5

Y.C.C. Parts Mfg.

Bumper Lin

H.C.Lin

Joyce Hsu

Lunch with YCC at airport

Flight to US

Hospitality / Openness

As obviously illustrated by the agenda, the trip to Taiwan was very intense and filled with diversity, both in people and products. The overwhelming hospitality we received was second to none of what I have ever experienced. I cannot articulate my feeling of gratitude properly to express how we were treated. Royalty is a word that may be fitting.

During each and every visit we were greeted in the most honorable fashion and were made to feel very welcome. As mentioned previously, it was also clear that there was in fact nothing for them to hide and all were conducting business as usual.

In addition to the unbelievable hospitality we were provided, the second most impressive thing was their sincerity in listening to any issues we discussed or advice we offered as it pertained to the parts manufacturing or shipping process. In fact, it was very gratifying to see the number of Quality Assurance people brought into our discussions so that we could make our points directly to them. In several cases, we were asked to look specifically at processes to offer our opinions on them as well.

All the above being said, we were left with the feeling that in some cases, our comments were not welcome. In fact, it appeared as though every time we stopped to look at something more in depth, we were shuffled off to the next area. Obviously to me personally this was very disturbing, but it seemed limited to basically one manufacturer.

Overall Impression

Overall, I feel the trip was a tremendous success for all concerns because it allowed me the opportunity to see the manufacturing process first hand and to more clearly understand the issues the manufacturers were faced with. More importantly, it gave us the chance to see what things we could work on immediately to significantly improve the products, process and perceptions.

I believe that the manufacturers have done a good job over the years on improving the fundamental basics of part reproduction such as metal thickness, rust issues etc. I also feel that CAPA has worked hard with the manufacturers to ensure those standards are met. There are however some issues that I will document throughout this report that I feel need to be addressed in order to take quality and consistency to the “next level”. I was somewhat dismayed by the “surprised” reaction by some of the manufacturers when we discussed items to focus on. It almost appeared as though they had not been told those things (see areas for improvement) in the past, which I find hard to believe.

The level of sophistication in the equipment and in most cases, the processes are extremely impressive. I personally did not expect to see the automation and investment of the millions of dollars by each manufacturer. The quality control is also impressive albeit there is room for improvement in areas that are not currently being checked.

The packaging and warehousing is done in a variety of fashions with some manufacturers going the extra step to ensure flanges and corners are protected all through the process while others are a little less stringent. It was refreshing to see a number of the manufacturers addressing shipping damage complaints through new packaging.

In many cases the picking of the parts and the distribution was partially automated and impressive. The warehousing, packing of the containers and the distribution of the products is an overwhelming task and appears to have been streamlined fairly well.

I personally came back from this trip with the belief that given the proper circumstances, the technology exists for the manufacturers to create a quality part that consistently fits. However I also believe that some of the very basic fundamentals of how the process takes place needs to be revamped in order to ensure that happens.

I will put together a list of recommendations at the end of this report, but one I will make now is that I feel anytime the opportunity should arise for participants from any segment of the collision industry to visit Taiwan and these manufacturers, I suggest they do it. It will open their minds and eyes to many things. I believe it is a tremendous step toward improved relationships that will ultimately continue to help bring better products and services to the collective industry.

Fundamental Issues

I believe there are several fundamental issues that need to be discussed and addressed in order to ensure that the manufacturing of parts remains on its path of continuous improvement.

Initial O/E Part Purchase and Measurement

First and foremost, Jack Gillis described their efforts to obtain parts from which the whole process begins. I personally found it very difficult to believe that these manufacturers had a process in place that I feel is as flawed as it is. In order for the manufacturer to reproduce a part, they purchase 5 O/E parts through a variety of means in the United States. Most manufacturers said they have the aftermarket distributors obtain them for them. They then measure the parts and take the closest to the O/E specs, which becomes the “standard”.

I am amazed that the manufacturers are all left to do this, which offers some insight into how the “standard” chosen could be off to begin with. There is no fitting of these parts after they are shipped halfway across the world to ensure that no shipping damage occurred. I will plead ignorance here as we did not spend a lot of time analyzing this, but I feel pretty strongly that there has got to be a more accurate method of which the whole process should begin.

In addition, in almost every instance, the O/E “standard” that was being utilized looked like it had been drug across the ocean on the back of the airplane. They were horrendous. These parts are also constantly being used to check measuring fixtures and production run consistency. I realize that over time the parts will look “worn” but I believe in many cases they were worn to the extreme.

CAPA Measuring Process and Fixtures

The second “fundamental flaw” I saw was in the CAPA measuring jigs. I believe CAPA has done a credible job in holding the manufacturers to a standard they had not previously followed, however, I was very dismayed to learn that each and every manufacturer was responsible for building its own measuring fixtures. This obviously poses significant issues when dealing with consistency, as each jig has the ability to be

created within a specified parameter but through different methods. In particular, we saw many measuring jigs that had rounded corners when in fact the parts should have been pointed and vice versa. This proved to be an issue because with the tolerances CAPA allows, a part with a rounded corner could still be “measured” acceptable when in reality it should have come to a point.

The other issue I find with this is that the CAPA measuring process is a perimeter check only and I did not see one test fixture that checked to ensure mounting holes etc. were in the proper place. (I am not saying it does not exist, but we did not see it).

Packaging

As previously stated, It was refreshing to see the efforts some of the manufacturers have put forth in improving packaging to minimize shipping damage. We were given the opportunity to view some packaging that was still going through the development phases as well as some others that were being utilized currently. One item of concern was raised when we learned that several distributors had complained about one manufacturer’s new packaging because it cut down on the number of parts that would fit into a container therefore increasing shipping costs.

Obviously their concern is valid, but I question whether or not the reduction in shipping damages helps to offset the additional cost. This manufacturer also mentioned that they were thinking of allowing distributors to purchase the parts either with the old packaging or the new. This is very disturbing because of two main reasons, one was that the cost difference would obviously be passed on which could allow for a shop to purchase the same part from one distributor for less due to packaging (and they may not ever know the reason for the difference). Secondly, someone could purchase what would otherwise have been a good part only to find it didn’t fit or was damaged due to its packaging. This then gives the entire industry a black eye and continues to support the perception that aftermarket parts don’t fit.

One other issue that has to deal with packaging is the imprinting of “CAPA Certified Part” on a box that could house a de-certified part. This is concerning from the standpoint that a part can be decertified, the sticker removed and an unsuspecting technician could utilize the part believing it was “CAPA Certified” due to the imprinting on the box. This is an area that I believe should be addressed as well to determine a method in which a decertified part is not mistaken for a CAPA Certified part.

We also saw CAPA Certified Parts boxes with parts in it that did not have a sticker applied. The explanation we were given was that the stickers would be applied “later on”. This is very concerning from the standpoint that the part could in fact be shipped without it and what would happen if the part was not certified after testing and it was already packaged?

Quality of A/M vs OE tooling

During our visit we saw a large quantity of tooling for OE products which interestingly was different in several ways. The OE tooling was much “beefier” in comparison to the aftermarket. Understandably, the OE tooling needs to produce more pieces, but I wonder whether or not the difference of approximately half the girth makes that much difference in cost.

The OE tooling also has a finish almost mirror like as compared to the aftermarket, which was not as highly polished. Quite obvious was the attention to detail in the corners and radii throughout in the OE tooling. It also appeared as though the flanges for hole punching were much sharper on the OE tooling than the aftermarket.

I can not help but wonder what the cost difference between the two is. I understand the approximate average cost to develop the aftermarket tooling is \$250,000. I was not able to learn the approximate average cost of the OE.

Salt Spray / Scratch testing

We were shown the salt spray machine at several of the manufacturers and while it was impressive that they had this equipment onsite, it was very disappointing to learn that only a cut out from a part went into this machine. I personally was always under the impression that the entire part was tested.

While it is important to ensure the durability of the metal in the event of a scratch, I believe it is far more important to test the products for corrosion where it happens the most often. That is around welds, brackets, flanges etc. I believe a true test for corrosion resistance must include a complete part. In the areas of this country where salt and a sand/salt combination is used in winter months, it is inside the inner and outer panel flanges and between braces etc, where the road salt and grime lays and causes corrosion.

Areas for Improvement

During our trip to Taiwan, there were a number of things that I regularly saw inconsistency in. The following are areas of detail that I feel are extremely important to collision repairers and the ultimate customer. I also firmly believe that with some focus, the proper identification and implementation plan, these items can, for the most part, be addressed very quickly and cost effectively. Addressing these small issues will undoubtedly improve the perceived and real quality of aftermarket parts in general without the need for losing focus on the larger areas of structural integrity and overall fit.

Hinge Braces

During our visits, we witnessed several manufacturers producing hoods. In that production process there is an inner and outer panel mated together to create a hood. Prior to the matching of the inner and outer, all braces and threaded reinforcements must be attached to the inner structure. In many cases, we saw this operation take place with little to no precision, and in fact, pointed out in several cases the inconsistency in how the braces were welded.

In the event the bolt holes and nuts are placed off center, there must then be that much adjustment in the hinges in order to properly mount the hood. While this may seem trivial, the vehicle manufacturers have continued to produce cars with less and less tolerances and adjustment points and this becomes critical in the parts not fitting not to mention the additional time the technician must take to make those adjustments.

More care must be taken to ensure the braces are held **PRECISELY** in the correct place.

Hood Strikers

We viewed a wide variety of methods for the attaching of the hood latch striker “U” to the inside hood braces. The disparity ranges from what I classify as the best method of an inner and outer mushrooming and welding verses a tack weld on the inside only. There were a number of others done in between those two methods.

Obviously, the hood striker is one of the most critical safety related items in the production of sheet metal. In fact, much of the hoopla around aftermarket parts stems from at least one documented instance of a hood being flung open due to a broken weld on the striker.

I believe an absolute standard should be developed and adopted for this particular process and anything short should be rejected. Not only does this affect the safety of the passengers in the vehicle it is on, but could also cause accident or injury for others around it.

Inner & Outer Panel Positioning

As previously stated regarding the hood braces, the positioning of the complete inner and outer panels is also critical. We witnessed in almost every case, the inner and outer being put together with little to no position or holding of the two panels. Once again, there is a significant flexibility of where the two panels can be positioned that could cause fit problems.

This positioning (or lack thereof) could cause the inner hood panel to be too far to one side, or diagonally offset, etc. this then once again causes fit problems unless there is ample adjustment in the mounting and latching mechanisms. Too often, shops are required to spend time to adjust these items when, in many cases, an OE replacement bolts up and fits without adjustment.

Holding Fixture Attachments

There was a wide variety of holding attachments utilized in the production process that I feel with some minor modification, would provide a more positive and consistent means of production quality. In most cases, there are rubber tips on these holding arms, etc. that are rectangular and flat. I feel that if the tips were produced to positively fit in specific holes or knockouts instead of just laying over them, they would provide a much more consistently quality product. In addition they would act as an additional measuring / positioning tool of sorts.

Flanges / Hemming Process

Many OE manufacturers when they hem the flanges of an outer skin over the inner they do so approximately 1/8 of from the outside edge, thus producing a rounded effect verses a flat one when it is hemmed all the way across. This also adds additional strength to the part as well as a different appearance.

During our trip we only saw one manufacturing facility that employed this process. It is these small details that once again continue to differentiate OE from aftermarket. In the event an OE part is hemmed in this fashion, then the aftermarket part should be as well.

Inner Panel Knockouts / Hole Punching

As mentioned previously, it appeared as though the hole punching process for aftermarket was similar in concept, but not quality to that of the OE parts. We viewed literally hundreds of parts and showed many of the Taiwanese representatives jagged edges, out of round circles, poorly shaped rectangles, etc. We also explained to them that although these areas may not be in direct view to the customer, the body shop technicians still had to handle them for refinishing and installation.

The edges being the way they were also posed a safety hazard for anyone that may have to work in those areas. Once again, I realize this may appear petty, however after spending many years cutting my arms and fingers on these areas during the refinishing and installation process, it is not petty to me or thousands of other collision repairers.

Corners – Manufacturing / Storage Issues

The process of manufacturing parts is one that obviously requires precision and care. We were able to view a wide variety of methods for the manufacturing and storage of parts. There were some instances when the inner and outer panels were stored on carts or hung to ensure no damage to the corners and edges took place, and in other cases, the parts and pieces were stored on end causing damage to the corners, etc.

One of the largest complaints from shops all over the country is that the corners of fenders, hoods and doors come through with damage on them. In most cases, it only requires a minimal amount of work to fix this damage, nonetheless it is annoying and does take additional time.

Bracket Location

A large issue over the years is the placement of reinforcement brackets and bolt flanges. It has been proven time and again that the placement of these items is critical in ensuring all the bolts can be easily installed without the need for reaming the holes out or using shims, etc.

During our visit, I was remarking about the issues I personally had over the years with some of the parts not fitting due to the misalignment of these brackets. As we were discussing this, someone asked me what I meant and when I went to show them, the mounting bracket on the part in the measuring fixture was off by almost an inch. This happened on at least two separate occasions.

Once again, this seems to be a minor issue, but it is most definitely one that will annoy a technician every time and in some cases, render the part not useable.

Label Placement / Material

We had an opportunity to discuss with several of the manufacturers the labels they were utilizing on the products. This discussion raised several important issues, first and foremost, the whole labeling issue was raised because one of the manufacturers was putting a toll free hot line number on the label that goes on the part. When we explained to them what typically happens to a part when it arrives at a shop, they realized that the label might be peeled off by a shop technician long before the part is fit on the vehicle, therefore if there was an issue, the label with the toll free number would be gone.

Secondly, we then discussed the placement of this label and the adhesive used on it. We demonstrated the difficulty the shops encountered in removing these labels due to their placement (if they had to be removed) and the adhesives used. The employees seemed rather surprised at the difficulty of this simple mundane task.

We also discussed the challenges a shop faced when receiving a part with a DOT label on it and the effort required masking that label from paints etc.

The discussion ended with the recommendations to strategically place the label on the part so it would not have to be removed. Create a label with an 800 number on it that can be attached to the Repair Order. Provide a “peel off” covering for the DOT stickers so they do not have to be masked.

Plastic Manufacturing

During our trip we visited several plastics manufacturers. During these visits, we observed the process of lamp, grilles and bumper cover manufacturing. We observed several things that were disturbing, first was that the plastics used were not always the same composition as the OE. Secondly, we questioned the creation of the molds and why certain “seams” were where they were. In one instance, we saw a seam line right down the face of a bumper cover that would require significant work to eliminate. Once pointed out, the manufacturer said “we can move that line to a place that can’t be seen”. Obviously, it is good it was identified and could be fixed, but disturbing that it happened to begin with.

The other item of concern was that although the plastic manufacturers had made significant strides in the clarity of the lenses and ensured the refraction was as it should be etc., there did not appear to be any devices for testing the fit of the parts made. There are measuring fixtures to check the sheet metal against, but we did not see this same process employed in the plastics manufacturing other than with some of the bumper covers.

Color of “out of sight” Items

During our tours of the plastic manufacturing plants on at least two occasions, we saw OE parts that were made from a plastic mixture of what appeared to be at least a different color if not a different composition. When this was pointed out to the manufacturer, the response was a laugh. It is clear that this was the first time at least this one particular manufacturer had ever heard someone tell him it was important for the “inside” of a part to be the same color and consistency as the OE. I explained to them that as a collision repairer, I would not be able to use that part even if the fit was perfect, especially with the number of leased vehicles on the road today that undergo a rigorous inspection at lease end.

I also explained to one of the lamp manufacturers, that when the CIC testing took place in Colorado and a headlamp was replaced, the mounting panel of the headlamp was a completely different color and required a different fastener for the grille than the OE. This provided us with two issues of appearance and not functionality, nonetheless important ones. When you opened the hood of the car, you were able to immediately see the different colors as well as how the grille was fastened differently from one side to the other.

Recommendations

The following suggestions/ recommendations are made based on my varied industry experiences and observations made during my recent trip to Taiwan. I am sure many of these suggestions have already been made and perhaps decided ineffective, however without knowledge of that, these are my personal beliefs as to how we can collectively work together to address them as participants representing a wide variety of market segments within the collision repair industry.

- Offer the opportunity to those that would like it to see first hand the Taiwan Manufacturers and their level of sophistication (just don't do 13 sites in 4 days)
- Work with CIC administrators to orchestrate a US manufacturing tour in conjunction with a future CIC meeting
- Due to the extreme cost of the hospitality received, I feel it would be important to establish a more reasonable (less timely and costly) level of hospitality so that if the number of visitors does increase, the burden will not be so cumbersome on the Taiwanese.
- Develop a method of communication that would offer those that have not seen the manufacturing process to experience it, possibly through video's etc.
- Create an inter-industry advisory council (or focus groups) to discuss the issues surrounding aftermarket parts in a forum that would have manufacturer, distributor, repairer etc. at the same table.
- Work more diligently with CAPA and collision repairers to better understand the issues from their perspective.
- Brainstorm with an inter-industry group how to better obtain a "standard" or "master" for the re-creation of the parts from the start.
- Work with CAPA to ensure consistency and the accuracy of the test fixtures.

- Work with an inter-industry group to establish a more robust list of items to look at such as the details provided in this report that could possibly be done by CAPA during its inspection process.
- Resolve the packaging issues as they relate to the imprinting of CAPA Certified on the boxes and establish a standardization in packaging of “Certified” parts that is consistent.
- Discuss the cost differences between OE and aftermarket tooling to determine reasonable methods to make the tooling more uniform.
- Develop a corrosion test that will ensure the entire part is checked, not just pieces of a part.
- Develop a procedure and checking mechanism to ensure bracing, brackets, etc. are more carefully placed in position before welding or fastening.
- Create a standard for hood strikers that can not be deviated from as a critically important safety issue.
- Develop a procedure and mechanism for the proper alignment of inner and outer panels prior to welding or fastening.
- Modify Holding Fixture attachments to ensure more accurate and consistent component placement.
- Ensure hemming of flanges is done in the same manner as the OE.
- Ensure tooling and process is refined so holes and knockouts are punched with precision and there are no jagged edges.
- Work more diligently to minimize damage to corners and edges during production, storage and shipping.
- Strategically place the label on the part so it would not have to be removed or alternatively utilize an adhesive less cumbersome to remove.

- Create a label with an 800 number on it that can be attached to the Repair Order.
- Provide a “peel off” covering for the DOT stickers so they do not have to be masked.
- Develop measuring / checking processes for “plastic parts”.
- Ensure plastic parts are of the same composition and color of the OE.

My final recommendation is that the TABPA, ABPA and CAPA establish a working group that would go to Taiwan and spend time at each of the manufacturers going over the parts that are being produced at that given time in comparison to that of the OE. The Taiwanese would have the ability to learn firsthand what was truly important to the repairers. This is not to suggest that the CAPA program or other measures that are in place are not effective, it is merely a suggestion to invest in what I believe would produce significant dividends very quickly without a lot of cost to the manufacturers. I recommend that this group be highly technical individuals and that there be representation from the distributors on this team as well.

Many of these recommendations can be implemented in a timely and cost effective manner given the right focus and understanding. I would be happy to discuss any of them with you more in depth. Additionally, I believe my company could put together the right team for the last suggestion and would welcome the opportunity to discuss this further and to perhaps develop a proposal.

I sincerely thank you for the opportunity to look more deeply into the aftermarket manufacturing process. I remain committed to work collectively with representatives of all market segments in the collision repair industry to make it a better environment in which to operate for all concerns.