

# 垃圾變寶

From Trash 系統升級再造  
to Treasure

Designing Upcycling Systems



汽車零件 打造型格家具

Turning Automobile Parts into Eco-reborn Furniture

ATB Design Company

香港  
Hong Kong

www.atbautoart.com

香港每年都有大量的汽車零件被棄置，大部分會被壓成廢鐵，還原成原材料，過程往往消耗大量能源。有見及此，設計師姚志輝、胡思穎和劉翠慧決心發掘各種汽車部件的再造潛質。

Tons of car parts are discarded each year in Hong Kong. Designers Alex, Telly and Beatrice decided to rediscover the upcycling potential of these car parts and turn them into presentable and functional household furniture. Discarded car parts thus gain a second life as household fixtures.

升級再造師 Upcyclers:

姚志輝 Alex YIU  
劉翠慧 Beatrice LAU  
胡思穎 Telly WOO



► 升級物料 Upcycled material:  
汽車零件 Automobile parts

## 穩定的棄置零件來源

### Non-stop supply of discarded parts

幾位設計師一直關注廢物問題，堅持「廢物利用」的創作理念。他們認為，不少棄置物依然具有美感，和原來用途以外的其他實用價值。他們期望尋回這些價值，並通過製作家具而實踐出來。

要把這概念化成一門長遠的生意，首要考慮的，是物料供應問題。在研究過程中，他們發現香港每年棄置大量汽車零件，這些零件不但形態特別，來源和數量亦較穩定。於是，他們決定專注把這些物料轉化成既美觀又安全實用的創意家具，讓它們重獲「新生」，成為居室的一員。

棄置零件主要由一般市區車房及新界的割車房收集回來。於車房搜集的較隨意，他們如發現車房外有棄置零件，便嘗試向店員收集或收購。其次則要與新界的割車房建立良好聯繫，才能較有系統地找到各式各樣的零件。

The designers are concerned about the massive volume of trash produced every day in Hong Kong. Upcycling has been adopted as a principle that drives their creative work. They believe that most waste has aesthetic merit and alternative value. Their work involves determining the possibility of realizing practical design by repurposing waste and creating products that can be used at home. The idea of "trash-come-furniture" was thus born.

The designers believe that to solve the problem of excessive industrial and solid wastes, furniture production may become a long-term business. Therefore, when they select their materials, they have to make sure they can secure a supply. They discovered that a huge number of car parts are discarded every year in Hong Kong. These parts are not only highly unique in terms of their form, but are also available from suppliers in stable quantities. Hence, they have become the main ingredients for the designers.

The discarded car parts mainly come from garages in the city and junkyards in the New Territories. Parts are collected from the former sources on a more ad hoc basis. The designers usually buy them from shops whenever they come across suitable parts. Collecting parts from junkyards, however, requires a more systematic search process.



◀ 新界割車場一隅  
A junkyard in the  
New Territories

## 由物料開始的設計方法 Material-based design method

不論是在收集物料或設計過程，他們均十分著重對物料的形態和質感之了解。收集物料時，他們主要採取兩種方式，一是考慮物料的美感：例如他們發現被拆下的曲軸和死氣喉，形態美觀獨特，便隨著其專業經驗和審美觀決定收集；另一是以作品主導，例如，要製作椅子的底座，就需要底部平整和有一定重量的材料，還要有孔洞以接合其他部分。基於作品主導的原則，他們最後選擇回收以精鋼製的剎車碟，作為底座。椅子座位則選用形狀與之相似的軟盤。

其實，依作品的要求來收集物料，又與他們的設計程序相關。他們認為家具的基本結構可分為面、中軸和底座三部分，於是便要研究和測試不同形狀、體積和質感的零件作出組合之可能；直至找到滿意的組合方式，才繪畫下來，紀錄作實。

During the collection and design process, the designers pay attention to the form and nature of the materials. Two methods are used to decide whether to take or leave materials. The first one is aesthetics; for example, crankshafts and exhaust pipes are collected because of their beautiful form; and another consideration originates from the resulting work in their mind. Though this may sound subjective, the decision is made on the basis of professional art and design expertise.

The latter collection method is intricately related to their design process. First, they use a standard furniture design model that involves dividing the structure into top, axis and base elements. Taking the stool as an example, the designers need to find car parts that have flat surfaces to act as the base, are of a certain weight to balance the top, and at the same time, have holes for assembling the axis. A discarded brake disc was then chosen as the base of the stool due to its weight and shape, with its holes facilitating a more straightforward assembly process. The seat was made from a steering wheel that resembled the form of the seat in mind. They start from studying the form, volume and texture of different car parts and how it is possible to combine the components, once the most aesthetic combination has been determined, it is then documented in a product drawing.

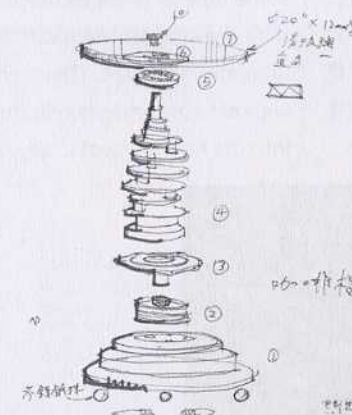
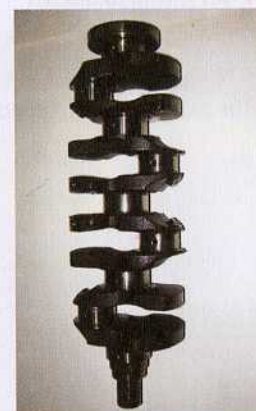


設計師親身到剎車場挑選物料  
The designers are selecting suitable materials in the junkyard



設計師們認為曲軸和死氣喉形態獨特，故此收集為設計物料  
Crankshafts and exhaust pipes are collected because of their beautiful and unique forms

廢棄的剎車碟已經磨損，但非常適合作為椅子或桌子的底座  
Discarded brake disc was chosen for its weight and shape as the base of a stool or coffee table



從研究物料出發，設計出合意的樣式後以繪圖記錄，再拿著圖樣與師傅商討製作和改良的方策，這是他們的設計程序  
The design process starts with searching for the most aesthetic combination of the needed components, followed by a product drawing, and subsequent discussion and making with the technician

## 製作過程的技術問題

### Technical issues in the production process



收集回來的零件需先作處理，這包括解體、分類、清潔、打磨及拋光上油（從左至右）  
Collected car parts must be taken apart, classified, cleaned, polished, burnished and painted before use

收集回來的零件，必須先作處理，以保障物料品質，便於日後製作。在設計過程中他們挑選了各種零件；製作時，則要解決其裝嵌問題。他們選擇的零件不少均以精鋼造成，比一般家用鋼鐵堅硬，必須用專門的大型機器才能處理，這增加了裝嵌的困難。此外，基於要延續廢棄物生命的設計信念，作品必須能作日常使用，裝嵌上更需考慮到安全與盛重的問題。

開始的時候，他們拿著圖樣，與一般的金工店舖及車房接觸，主要是要把所需的零件從機械部分拆出來重新組裝，並要利用特別的方法去清洗打磨。但要不是那些店舖沒有相關機器或技術，就是師傅們認為工序太過麻煩，不願合作。「最後，憑著一份堅持，終於找到願意與我們看著設計圖一起研究和討論的師傅，不少技術上的問題才得以解決。」姚志輝說：「當師傅看到我們的製成品時，對零件能變成這樣子，都感到非常有趣！」



與師傅研究討論  
Discussing a technical problem with the technician

To ensure product quality, the car parts collected had to be handled properly before use. The next issue was that of assembly. They had already conceived how to assemble the product during the design process. Yet how could it be assembled on a permanent basis? Car parts are made of high-quality steel and have a higher density than most household appliances; hence, it is more difficult to handle such parts using regular machines. A large cutting machine would have to be employed. Moreover, as the products they designed were for household usage, safety and supporting measures were critical issues to deal with in the course of the design process.

At the very beginning, the designers tried to take the design drawing and approach garages for assistance. Most garages refused to work with them due to their inadequate technical expertise or the complicated nature of the task. It took them some time to find a technician who was willing to discuss their drawing and help with the assembling. The problem was ultimately resolved. "The technician found it interesting when we were able to demonstrate how the parts could be turned into the final products," says Alex.

## 成立公司 提供訂製服務

### The establishment of ATB: providing commissioned services

現時，姚志輝、胡思穎和劉翠慧以「環保再生家具」的概念成立了 ATB Design Company，除了按收集到的廢棄零件創作特定的家具系列外，還提供訂製服務：當車主棄置舊車時，可選擇保留部分部件，如每天都握著、對之有情感的軚盤，交 ATB 設計製作成合用而且有型的家具。他們希望產品能延續零件「壽命」的同時，也鼓勵人家善用已有的物資。既帶動環保關注，亦能吸引汽車愛好者。他們現時的客戶以汽車愛好者及專業的小型賽車車手等為主，此外，他們更期望能與某些車行或汽車品牌結盟，展銷其產品系列。

Alex, Telly and Beatrice now founded the ATB Design Company based on their banner of "eco-reborn furniture". Apart from collecting old car parts and remaking them into stylish furniture, they also provide commissioned services. When car owners decide to discard a car, they can choose to keep those parts that have the most sentimental value to them and hand them over to ATB to make into furniture. ATB hopes that while promoting an eco-friendly concept, their service is attractive to automobile enthusiasts who instruct them to undertake special commissioned work. Their customers currently comprise car enthusiasts and kart drivers. And they would hope to liaise with automobile brands to develop branded products in the future.



姚志輝、劉翠慧和胡思穎（從左至右）與其作品合照  
Alex, Beatrice and Telly (from left to right) and their work

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### 升級再造系統 Upcycling System Map

