

(Customer Report from Japan)

(來自日本的客戶報告)

Magna Alloys for Japan's Famed "Bullet Trains" – Shinkansen

日本知名「子彈列車」- 新幹線使用萬能合金

Magna 55, a special, easy-to-use alloy for the repair of Aluminium parts, has attained an almost "cult" status in Japan from the various train body workshops. For light weight, easy maintenance and good strength, most of Japan's world famous "Shinkansen" or high speed passenger trains, have aluminium bodies.

萬能 55，一種維修鋁製部件的特殊、容易使用的合金，在多家日本列車車體廠商已獲得幾近「狂熱」的評價。由於質輕、易於維修又有高強度，絕大部分世界知名的日本「新幹線」或高速載客列車都使用鋁質車體。

Curved aluminium sheeting is actually riveted and/or welded onto the body frame. The good aerodynamics of the engine plays a major role in the train attaining and cruising economically at high speed.

其實彎曲的鋁板是用鉚釘固定並且/或是焊接在車架上。良好空氣動力學設計的引擎在列車高速和與有效率的行駛方面扮演重要的角色。

A very common problem being experienced with the engine bodies is that the seams between the aluminium sheets "dimple", scar and chip off regularly due to a combination of wind shear force, vibration and weathering. The conventional repair and maintenance method required that each body sheet be cut off with a welding torch and a new (and very expensive) moulded body sheet used to replace the damaged ones.

引擎本體最常遇到的問題就是由於風切力道、震動以及風化作用使兩塊鋁板中的縫隙會定期凹陷、刮傷、剝落。傳統維修與保養方法是將每個車體板以氣焊切下並且用一個全新 (而且非常昂貴) 的預鑄車體板來替換受損的板子。

This used to be a very expensive, painstaking and difficult operation.

這種方法非常昂貴、辛苦且困難。

Now, the train body assembly and repair has been simplified at relatively low cost, saving many man-hours by using Magna's world famous Magna 55 Aluminium Gas welding Alloy.

現在在費用相對低廉、人工相對節省的條件下，藉著使用世界知名的萬能工業萬能 55 鋁質氣焊合金簡化了列車車體組裝與維修的程序。

Many manufacturers have found that although fabricating parts from “virgin” metals using jigs and fixtures is relatively straightforward through the proper design and engineering of the manufacturing processes, when it comes to maintaining the finished product, the ordinary “production-oriented” products just are not up to the task.

許多製造商發現，「初生」金屬的生產流程藉著適當設計與建構，使用鑽模與夾具製成部件雖然相對容易，但是當需要維護已完成的作品，一般「生產導向」的產品就是無法達到要求標準。

Magna products are designed and engineered from inception specifically for maintenance applications and the various difficulties that engineers face in repairing aluminium parts were taken well into account. That is why Magna 55 and virtually all Magna Group products work better than any other when it comes to repairing and maintenance.

萬能產品從一開始就特別為維修應用方面設計與建構，並且考慮到工程師維修鋁質部件時所面對的各種困難。這是萬能 55 以及實際上所有萬能集團產品為何在維修與保養方面比其他產品有效的原因。



NIPPON SHARYO LTD. (REPORT)

日本車輛製造株式會社 (報告書)

Name of Company: Nippon Sharyo Ltd., Toyokawa Factory

公司名稱：日本車輛製造株式會社 豐川工廠

Division: Railroad Train Division, Assembly Section

部門：鐵道車輛部製造部組裝課

Engineers-in-Charge: Mr. Ota, Factory General Manager

Mr. Nakamura, Engineer

負責工程師：太田廠長

中村工程師

Subject: Magna 55 – Purpose of Application

Super Express Train “Nozomi,” Body Maintenance

Ordinary Train, Body Maintenance

主題：萬能 55 – 使用目的

新幹線列車“希望號”-車體維修

東京都電車-車體維修

Result: Train body is Aluminium 5000. Up to now, the dimple, scar and chipping of train body is maintained by cutting off the dotted line (see diagram) and changing each (body) sheet. This operation takes a lot of time and money. However, with the Magna 55 Alloy and its remarkable colour match to the train body, there is no longer any need to change the whole sheet. The body imperfections can be filled in with perfect results using Magna 55!!!

使用結果：車體是 5000 系列鋁。到目前為止，車體凹陷、刮傷、剝落是藉由切掉有點點的線(見圖)與更換每個(車體)體板來修復。此作業花費許多時間與金錢。然而，有了萬能 55 合金與其卓越的與列車車體吻合成色，從此不需再更換整片車體板。車體瑕疵部分可使用萬能 55 來修復以得到完美結果!!!

Conclusion: As a maintenance company for the train and body, we, Toyo Kogyo Ltd., recommend Magna 55 for the repair of the train bodies.

結論：我們公司，東洋興業株式會社，作為列車與車體的維修廠商，推薦萬能 55 使用於維修列車車體。

(Remark: Toyo Kogyo is the authorized company actually contracted to carry out the maintenance. Nippon Sharyo is the train body manufacturer.)

(備註: 東洋興業株式會社是實際承包維修作業的授權廠商。日本車輛製造株式會社是列車車體製造商。)