

油氣雙燃料車 (LPG車)

介紹及運用

Introduction and Application of Liquefied Petroleum Gas (LPG) Vehicles

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壹、前言

當前國際能源價格高漲、地球暖化日益嚴重，節約車輛汽油使用及有效減少二氧化碳排放量為各國重要課題，亦發展出「油氣雙燃料車」及「油電混合車」等車種，其中「油氣雙燃料車」在新購或改裝成本上較「油電混合車」為低，較為一般人所接受；為瞭解油氣雙燃料車功能特性，本署（後勤處）於97年7月30日邀請行政院環保署推薦之「中國液化石油氣加氣站協會」實施車輛介紹及試駕活動，茲將相關油氣雙燃料車相關功能特性提供同仁參考運用。

貳、油氣雙燃料車 (LPG車) 介紹：

一、LPG車之主要功能特性：

(一) 系統運作概述：

油氣雙燃料車為汽油與LPG兩種燃料供應引擎，故稱油氣雙燃料車（LPG英文縮寫為liquefied petroleum gas，中文譯為液化石油氣）。本系統為瓦斯多點噴射系統（由瓦斯電腦LPG ECU控制，如示意圖）；其瓦斯燃料鋼瓶裝置於後行李箱；油、氣燃料選擇是透過自動切換裝置做改變；引擎啟動時，均以汽油系統啟動，於到達設定之引擎溫度（水箱溫度達700C）及轉速（1500 RPM）時，自動切換至瓦斯系統，在行進間可視需要（如須較高馬力時），用手動切換「

Part I. Preface

When energy price raises and the greenhouse effect gets serious, spare automobile-using gasoline and reduce carbon dioxide (CO2) emission become very essential topics for every nation worldwide. LPG (liquefied petroleum gas) vehicles and HEV (hybrid electric vehicle) are developed; the former is cheaper on both new and re-equipping vehicles than the later and is commonly accepted by people. For understanding the characteristics of LPG vehicles, Department of Logistics of Coast Guard Administration invited LPG Filling Station Association (LPGFSA); recommended by Environmental Protection Administration of Executive Yuan; to hold the activity for introducing and test-driving LPG cars on July 30, 2008. Here is the information about the function and features of LPG.

Part II. Introduction of LPG Vehicles:

I. Features:

(I) Summary of system operation:

Gasoline and LPG are the two fuels used by LPG vehicle, so the vehicle is called liquefied petroleum gas vehicle. This system is a gas multi- injection system (was controlled by LPG ECU, see the chart). The gas fuel tank set in the trunk; petroleum and gas are selected and changed by the automatic switch device.

瓦斯/汽油」按鈕，選擇使用瓦斯或汽油燃料供應引擎。



LPG車雙燃料供應引擎系統示意圖（資料來源：中國液化石油氣加氣站協會）

The Illustration of Dual fuel Engine System Operation of LPG Vehicle (Data source: LPGFSA)

(二) 節省燃料成本計算：

依據中國液化石油氣加氣站協會資料，實車分別以汽油及LPG為燃料測試，如該汽車每公升的汽油平均行駛里程約為8km，則每公升的LPG平均行駛里程約為7km，使用LPG行駛里程約減少13%至15%，但以燃料成本計算，97年8月22日中油公司公告牌價，每公升95無鉛汽油為34元、車用LPG為19.1元（每公升價差14.9元），依前例每公里汽油成本為4.25元、燃氣成本為2.7元，使用LPG車時每公里可節省約1.55元，燃料成本費用可節省約36.5%。

(三) 加裝零件之安全性：

- 1.LPG車加裝之零組件須通過經濟部標準檢驗局商品檢驗合格證明、改裝車型須通過交通部委託車輛研究測試中心安全審驗合格及通過監理單位辦理雙燃料檢、行照變更等機關之驗證，安全性可獲得保障。
- 2.瓦斯鋼瓶為3.0mm以上專用鋼板，且鋼瓶為圓筒型設計，除具耐高壓之特性外，在遭外力如子彈射擊時，因無特定平面極易使子彈彈跳離開，其作用有如軍用鋼盔一樣。另外，瓦斯燃點高達430℃以上，因

When the engine starts, the system of petroleum always functions and when the engine temperature reaches to the setting point (radiator reaches 70 degrees centigrade and engine rotation speed up to 1500 RPM), it automatically switches to gas system. It depends on necessity when car moving (need higher horsepower), then manual switch to gas/petroleum bottom; select either one as fuels for the engine.

(II) Spare fuel cost:

According to information provided by LPGSA on the test result on a real vehicle which uses gasoline and LPG individually as the fuel, the efficiency of this car using petroleum is 8 kilo-meter per liter in average while LPG is 7; the mileage of the latter reduces 13%-15%. However, if we calculate the fuel costs, according to CPC Corporation, Taiwan' posted price; unleaded gasoline #95 is NT\$34 per liter while LPG NT\$19.1 (price gap NT\$14.9 per liter) on August 22, 2008. The fuel costs of the former is NT\$4.25 as the later NT\$2.7 per kilo-meter so that LPG vehicles can save NT\$1.55 per kilo-meter. That means we can save fuel costs about 36.5%.

(III) Safety of adding components:

- 1.Added components of LPG vehicles have to be tested and approved by Bureau of Standard, Metrology and Inspection. Re-equipping vehicles have to pass quality assurance testing conducted by Automotive Research & Testing Center (ARTC) commissioned by Ministry of Transportation and Communications as well as pass dual fuel inspection and alter vehicle license by the Motor Vehicles Offices to assure safety.
- 2.LPG steel bottle is made by 3mm or above steel plate and its cylinder device

鋼瓶內液態瓦斯洩漏至大氣中，即瞬間產生潛熱現象，將周遭空氣溫度急速降低，且瓦斯鋼瓶為高壓力儲存容器，若遭子彈垂直射擊穿透發生瓦斯洩漏時，因瓦斯有上述說明之特性，雖有瓦斯洩漏，但未達燃點不易引燃著火，若有引燃著火時，因鋼瓶內為高壓之液態瓦斯，不會逆流回鋼瓶內而引發爆炸，故如遇子彈擊中穿透時，不會有引爆之虞。

- (四) LPG車之環保性：LPG成分為無毒性及無腐蝕性，引擎排放廢氣中不含傷害健康的鉛，也不含致癌性的苯，根據環保署委託專業單位測試，LPG車在一氧化碳(CO)、碳氫化合物(HC)分別有71%、89%的減量效益，主要影響溫室氣體二氧化碳(CO₂排放量)，亦有14%的減量效益。

二、LPG車與一般車輛之比較：



LPG鋼瓶置放後行李箱位置。
LPG steel cylinders were put in the trunk.

not only can endure high pressure but also function like military helmets when outside force as bullets shooting on it, the bullets can easily flip away due to the round surface. Moreover, the ignition point of the LPG is up to 430 degrees centigrade or above, once it leaks into the air will produce latent heat and rapidly lower the temperature around. Besides, the steel bottles are high pressurized storage containers. So that combining the above characteristics even bullets run through the bottles vertically and cause gas leaking, it is uneasy to ignite and burn due to not reaching the ignition point.

- (V) Environmental protection of LPG vehicles
The ingredients of LPG are non-toxicant and non-corrosive. The emission of LPG engine does not contain lead damaging body health or benzene causing cancers. LPG fuel reduces 71% of CO (carbon monoxide) and 89% of HC (hydrocarbon) and individually and 14% of greenhouse effect caused by carbon dioxide (emission of CO₂) based on the information from professional section commissioned by Environmental Protection Administration.

II. LPG vehicles and others:

(I) Weight increase:

Basically LPG vehicles mainly use LPG fuel and gasoline is as assistance. Based on LPG vehicles drivers' habit that when filling about 20 liters gasoline the weight is around 15kg, and adding LPG fuel to 0.0050M³, the total weight of the two fuels is about [52.5kg(LPG) + 15kg(gasoline)] = 67.5(±5kg); only 27.5kg heavier than filling only gasoline fuel (67.5kg [weight of LPG] -40kg [weight of filling only gasoline]) .

(II) Miles of LPG:

If the mileage of gasoline is about 8km per liter; the volume of a fuel tank is about

(一) 增加重量比較：

油氣雙燃料車基本上以「LPG燃料」為主、「汽油燃料」為輔，依照目前油氣雙燃料車車主對於「汽油燃料」充填加油習慣，大致每次加油量20公升時，汽油重量約15 kg，若再加當時LPG燃料亦充填加氣到50公升時，該部車輛的燃料總重量約為「52.5 kg (LPG) + 15 kg (汽油)」=67.5 kg (±5 kg)，僅比原汽油燃料系統時多重約27.5 kg (67.5 kg【LPG重量】- 40 kg【原汽油重量】)。

(二) LPG車行駛距離比較：

汽油油箱內容積之充填加油量約為50~55公升，如以汽油每公升平均行駛里程約為8公里，則加滿油箱可行駛400至440公里；同樣LPG瓦斯容器之充填量為50~55公升時，以每公升LPG平均行駛里程約為7公里，則加滿LPG可行駛350至385公里。

(三) 對後行李箱空間之影響：

瓦斯鋼瓶裝置於後行李箱後座椅背後，且均固定置放於後行李箱最裡(深)層處，約佔行李箱1/3至1/4的空間，如無配置或裝載特殊大型固定設備，通常影響不大；未來發展為備胎型鋼瓶時，則完全不影響後行李箱空間。

三、改裝LPG車考慮因素：

(一) 改裝成本費用：

車齡5年內車輛改裝為LPG車費用，依車型不同約為4萬政府機關目前尚無補助，改裝時間約為1天。(改裝LPG車廠商資料如附表1)

(二) 加氣站位置：

全台目前有25座加氣站(目前設置地點：基隆市、台北市、台北縣、桃園縣、台南縣、台南市、高雄縣、高雄市及宜蘭縣等縣市)、籌建中22座，另行政院推動在5年內投入75.72億元，加氣站增為150站，以各縣市均設置為目標。(加氣站位置如附表2)

50~55 liters, then a tank filled up with gasoline can run 400-440km. As same volume of gas tank, LPG is 7km per liter in average, and a tank filled up with fuel can run 350-385km.

(III) Effect to trunk space:

LPG steel bottle stabled sets inside the deepest space of the trunk; behind the back seats and occupies about 1/3~1/4 of the trunk space. It is usually no influence if there is no other device or large-sized equipment in the trunk. It will not affect the trunk space a bit if spare tire type steel bottle is developed in the future.

III. Conditions of re-equipping LPG vehicles:

(I) Cost of re-equipping:

Based on different types, re-equipping cost of cars which age within 5 years is about NT\$40,000 and time is about one day (factory of vehicles re-equipping: see attached table1).

(II) Locations of LPG filling stations:

There are 25 LPG filling stations in Taiwan: Keelung City, Taipei City, Taipei County, Taoyuan County, Tainan City, Kaohsiung County, Kaohsiung City, Yilan County and so on. There are also 22 stations preparing to be built. Moreover, the Executive Yuan promotes to increase LPG filling stations to 150 stations within 5 years and prepares to spend NT\$75.72 hundred million. All counties and cities have LPG filling station is the goal. (Locations of LPG filling stations: see attached table2.)

(III) Types of new and re-equipping vehicles:

1. New car types: According to common contract in department of procurement of Bank of Taiwan, LPG car types for procurements are GRUNDER 2.4 (P712X) LPG and FORTIS 2.0 LPG vehicles of China Motor (both contract prices are NT\$665,990).

2. Types of re-equipping vehicles: There

(三) 新車及改裝LPG車車型：

- 1.新車車型：依據台灣銀行採購部共同供應契約車型計有中華汽車GRUNDER 2.4 (P712X) LPG車及中華汽車FORTIS 2.0 LPG車（契約價格均為66萬5,990元）。
- 2.改裝車型：計有國瑞、賓士、別克、日產、中華、福特及本田等7種廠牌，23種車型，排氣量計有1500CC至3500CC均有。（改裝LPG車型如附表3）

參、本署車輛採用（改裝）LPG車規劃：

一、政策規定：依據行政院「中央政府各機關採購公務車輛作業要點」及「97年度各機關採購（改裝）低污染車輛經費處理原則」等規定如后：

- (一)採購各式公務車輛，如油氣雙燃料車車種符合使用需求者，應採購油氣雙燃料車，至採購之車輛未有油氣雙燃料車車種時，以節能標章之車種為優先。
- (二)各機關現有公務車輛車齡5年內且屬已取得合法改裝認證之車型者，應改裝為使用電腦控制多點噴射套件之油氣雙燃料車。

二、新購及改裝LPG車規劃：

are 7 types of vehicles; that is, Kuozui Motors, Mercedes-Benz, Buick, Nissan, China Motor, Ford, and Honda. Engine volume is from 1500cc to 3500cc (types of re-equipping LPG vehicles: see attached table3).

Part III. Plans of re-equipping vehicles of Department of Logistics

I.Policy:According to government procurement regulations of official cars ruled by Executive Yuan. and Government procurement expenditure regulations on low polluted (re-equipping) cars in 2008, the rules are:

- (1)When purchase official cars, LPG car should have priority if it meets the needs of users. If no LPG cars match the needs, then vehicles with energy saving labels should have priority.
- (2)The vehicle age of government official cars within 5 years which legally passed re-equipping test should be re-equipped as computer control multiport injection LPG vehicles.

II.CGA Plans for new and re-equipping vehicles:

- (I) Based on the government restrictions of annual planning and budgeting limit for cars, restrictions of emission, procurement for car types, vehicle types which are tested and approved by Ministry of and Transportation and Communications, and locations of LPG filling stations, examining and purchasing LPG vehicles is considered.
- (II)The Administration has partially cars matching re-equipping conditions.We should examine and review the locations for filling stations and re-equipping. Continuing and voluntarily examine and promotion LPG vehicles in the terms of stations in the area and the progress of opening up to safety test and approval of car types.



本署辦理LPG車輛解說及試駕活動現場。（後勤處提供）
Coast Guard Administration conducted the LPG vehicle exposition and test drive. (Department Of Logistics)

- (一) 依據當年度車輛預算編列額度、排放量限制、共同供應契約車型、交通部車型安全審驗認證車型及加氣站位置等限制因素，檢討購置LPG車。
- (二) 本署現有車輛部分符合LPG車型改裝條件車輛，應考量轄區內加氣站位置，檢討辦理改裝；爾後並視轄區內加氣站設置及安全審驗認證車種開放進度，持續主動檢討辦理。

肆、結語：

行政院為落實節能減碳政策，已將機關採購（改裝）油氣雙燃料車（LPG車）列為實踐項目，鑑於車輛亦為本署執行任務不可或缺之重要裝備，為求兼顧節能減碳，應請配合採購（改裝）油氣雙燃料車（LPG車）政策推動，共同為地球環境永續發展盡一己心力，使我國成為低碳、潔淨社會及永續國家。😊

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Port V. Conclusion

To save energy and reduce carbon emission, Executive Yuan lists government procuring LPG vehicles as a practice item. Due to vehicles is the indispensable equipment for the Administration's mission, we should purchase LPG vehicles for making us a low carbon emission, clean, and everlasting country and also take our responsibility for the earth.

(The author is currently with the office of Department of Logistics of Coast Guard Administration.)



附表1 改裝LPG車 地點一覽表：

安裝廠名稱	總廠服務住址	連絡電話
海陸LPG事業-運寶安裝廠	台北市松山區撫遠街437-1號 台中市西屯區甘河路12號 台南市安南區安吉路一段465號 高雄縣仁武鄉高楠公路53號	(02)2761-6005 (04)2311-9811 (06)247-6828 (07)342-4253
元太安裝廠	桃園市大興西路三段722號	(03)370-3877
益歐安裝廠	台北市中山區濱江街331號	(02)2881-2342#815
世紀安裝廠	汐止市新台五路二段236號	(02)2641-2380

Table 1: factory of vehicles re-equipping

Name of factory	Address	Contact phone number
Luhai LPG Business -yunbao factory	No.437-1, Fuyuan St., Songshan District, Taipei City No.12 Ganhe Rd., Situn District, Taichung City No.465, Sec.1, Anji Rd., Annan District, Tainan City No.53, Gaonan Highway, Renwu Township, Kaohsiung County	(02)2761-6005 (04)2311-9811 (06)247-6828 (07)342-4253
Yuantai factory	No.722, Sec.3, Daxing W.Rd., Taoyuan City, Taoyuan County	(03)370-3877
Yiio factory	No.331, Binjiang St., Zhongshan District, Taipei City	(02)2881-2342#815
Century factory	No.236, Sec.2, Sintai 5th Rd., Sijih City, Taipei County	(02)2641-2380

附表2 營業中加氣站一覽表

區域	站名	住址	加氣服務時間	電話
台北市區	中油內湖加氣站	台北市內湖區安康路284號	07:00 22:00	(02) 2790-9413
	陸海濱江加氣站	台北市松山區濱江街375號	24 hr	(02) 2509-3745
	西歐大直橋加氣站	台北市中山區濱江街333號	24 hr	(02) 2503-3166
	台灣優利內湖加氣站	台北市內湖區安康路296號	24 hr	(02) 2792-4733
	六通加氣站	台北市中山區濱江街183號	24 hr	(02) 2517-6032
台北縣區	莒光路加氣站	台北縣中和市莒光路285號	24 hr	(02) 8951-9011
	陸海新安和加氣站	台北縣新店市安和路三段37號	24 hr	(02) 2946-3059
	聯華新店加氣站	台北縣新店市安康路二段300號	24 hr	
	淳寶加氣站	台北縣汐止市新台五路二段236號	24 hr	(02) 2690-0088
	泰新加氣站	台北縣泰山鄉中山路二段61號	24 hr	(02) 2909-4220
	聯華三重加氣站	台北縣三重市光復路二段168-1號	24 hr	
	聯華土城交流道加氣站	台北縣土城市大安路101號	24 hr	(02) 2267-5755
	宜蘭縣	宜蘭加氣站	宜蘭縣宜蘭市中山路一段118號	24 hr
桃園縣市	桃園加氣站	桃園市大興西路三段722號	24 hr	(03) 370-3877
	千億加氣站	桃園市平鎮市延平路三段489號	24 hr	(03) 496-3666
	中壢工業區	桃園市中壢市中華路二段230號	24 hr	(03) 452-1948
台中市區	台中港路加氣站	台中市台中港路三段119號	07:00 22:00	(04) 2358-0891
	西歐文南加氣站	台中市南區文心南路641號	24 hr	(04) 2261-5700
台南市區	戴豐加氣站	台南市安南區安吉路一段465號	07:00 23:00	(06) 247-6828
台南縣區	久井加氣站	台南縣永康市甲頂里中華路1069號	07:00 23:00	(06) 282-9833
	亞洲仁德加氣站	台南縣仁德鄉仁愛路1165號	07:00 21:00	(06) 335-8580
高雄市區	漁港路加氣站	高雄市前鎮區漁港路2-1號	07:00 21:00	(07) 822-4007
	左楠加氣站	高雄市左營區左楠路2-1號	07:00 22:00	(07) 588-8562
高雄縣區	亞洲五塊厝加氣站	高雄縣仁武鄉高楠公路53號	07:00 22:00	(07) 342-4253
基隆市區	八堵加氣站	基隆市八堵路158號	07:00 22:00	(02) 2456-0524

Table 2: Locations of LPG filling stations

District	Station	Address	Open time	TEL
Taipei City	CPC Neihu Station	No.284, Ankang Rd., Neihu District, Taipei City	07:00 22:00	(02) 2790-9413
	Luhai Binjiang Station	No.375, Binjiang St., Songshan District, Taipei City	24 hr	(02) 2509-3745
	Sure Dazi bridge Station	No.333, Binjiang St., Zhongshan District, Taipei City	24 hr	(02) 2503-3166
	Unisys Neihu Station	No.296, Ankang Rd., Neihu District, Taipei City	24 hr	(02) 2792-4733
	Liutong Station	No.183, Binjiang St., Zhongshan District, Taipei City	24 hr	(02) 2517-6032
Taipei County	Jyuguang Rd Station	No.285, Jyuguang Rd., Jhonghe City, Taipei County	24 hr	(02) 8951-9011
	Luhai Anhe Station	No.37, Sec. 3, Anhe Rd., Xindian City, Taipei County	24 hr	(02) 2946-3059
	Lianhwa Sindian Station	No.300, Sec. 2, Ankang Rd., Sindian City, Taipei County	24 hr	
	Chunbao Station	No.236, Sec. 2, Sintai 5th Rd., Sizhih City, Taipei County	24 hr	(02) 2690-0088
	Taixin Station	No.61, Sec. 2, Zhongshan Rd., Taishan Township, Taipei County	24 hr	(02) 2909-4220
	Lianhwa Sanchong Station	No.168-1, Sec. 2, Guangfu Rd., Sanchong City, Taipei County	24 hr	
	Lianhwa Tucheng interchange Station	No.101, Da-an Rd., Tucheng City, Taipei County	24 hr	(02) 2267-5755
Yilan County	Yilan Station	No.118, Sec. 1, Zhongshan Rd., Yilan City, Yilan County	24 hr	(03) 925-1958
Taoyuan County	Taoyuan Station	No.722, Sec. 3, Daxing W. Rd., Taoyuan City, Taoyuan County	24 hr	(03) 370-3877
	Qianyii Station	Jhongli No.489, Sec.3, Yanping Rd., Taoyuan County	24 hr	(03) 496-3666
	Jhongli industry district Station	No.230, Sec. 2, Jhonghua Rd., Jhongli City, Taoyuan County	24 hr	(03) 452-1948
Taichung City	Taichung Port Rd Station	No.119, Sec. 3, Taichung Harbor Rd., Xitun District, Taichung City	07:00 22:00	(04) 2358-0891
	Sure wunnan Station	No.641, Wunsin S. Rd., South District, Taichung City	24 hr	(04) 2261-5700
Tainan City	Gufon Station	No.465, Sec. 1, Anji Rd., Annan District, Tainan City	07:00 23:00	(06) 247-6828
Tainan County	Jiujii Station	No.1069, Jhonghua Rd., Jiading Village, Yongkang City, Tainan County	07:00 23:00	(06) 282-9833
	Asia Rende Zuonan	No.1165, Ren-ai Village, Rende Township, Tainan County	07:00 21:00	(06) 335-8580
Kaohsiung City	Yugang Rd. Station	No.2-1, Yugang Rd., Qianzhen District, Kaohsiung City	07:00 21:00	(07) 822-4007
	Zuonan Station	No.2-1, Zuonan Rd, Zuoying District, Kaohsiung City	07:00 22:00	(07) 588-8562
Kaohsiung County	Asia Wukuaicuo Station	No.53, Gaonan Highway, Renwu Township, Kaohsiung County	07:00 22:00	(07) 342-4253
Keelung City	Badu Station	No.158, Badu Rd., Nuannuan District, Keelung City	07:00 22:00	(02) 2456-0524

附表3 交通部安全審驗認證可改裝LPG車型：

廠牌	國瑞 (TOYOTA)								賓士		別克 (GM)	
車型	VIOS	ALTIS		CAMRY			ALL NEW CAMRY		BENZ		EXCELLE	
排氣量	1.5	1.6	1.8	2.0	3.0	3.5	2.0	2.4	3.2	1.8	1.8	
型式	EEPSKR UIPEPE UPIEPS	CEIEPD	ZEIEPE	NVIEPN	MVIEPG	JETEKR	JEPNKR	JEANKR	E320	E200	EXCELLE	
車價(元) (※表共同供應契約無此車型)	※	※	583,756	※	※	1,035,533	※	※	※	※	583,756	
廠牌	日產 (NISSAN)				中華			福特			本田	
車型	BLUE BIRD	TEANA		CEFIRO	SENTRA	LANCER	FORTIS	GRUNDER	TIERRA	FOCUS	METRO STAR	ACCORD
排氣量	2.0	2.0	2.3	2.0	1.8	1.8	2.0	2.4	1.6	1.8	2.0	2.0
形式	G11TS	J31T	J31S	A33T	N16ES	LC1.82SDA	LC20SDA	GL24SDA	C206-6Z	C307-6S	CD132-6V	EX-S-2OL
車價(元) (※表共同供應契約無此車型)	62,4365	639,594	781,726	※	※	583,756	665,990		※	583,756	※	※

Table 3: ministry of and Transportation and Communications approved re-equip to LPG vehicles types

Brand	Kuozui Motors (TOYOTA)								Mercedes-benz		Buick (GM)	
Serial	VIOS	ALTIS		CAMRY			ALL NEW CAMRY		BENZ		EXCELLE	
Volume	1.5	1.6	1.8	2.0	3.0	3.5	2.0	2.4	3.2	1.8	1.8	
type	EEPSKR UIPEPE UPIEPS	CEIEPD	ZEIEPE	NVIEPN	MVIEPG	JETEKR	JEPNKR	JEANKR	E320	E200	EXCELLE	
price(NT dollars) (※not included in procurement contract)	※	※	583,756	※	※	1,035,533	※	※	※	※	583,756	
Brand	NISSAN				China Motor(MITSUBISHI)			Ford			Honda	
Serial	BLUE BIRD	TEANA		CEFIRO	SENTRA	LANCER	FORTIS	GRUNDER	TIERRA	FOCUS	METRO STAR	ACCORD
Volume	2.0	2.0	2.3	2.0	1.8	1.8	2.0	2.4	1.6	1.8	2.0	2.0
type	G11TS	J31T	J31S	A33T	N16ES	LC1.82SDA	LC20SDA	GL24SDA	C206-6Z	C307-6S	CD132-6V	EX-S 2.0 L
price(NT dollars) (※not included in procurement contract)	62,4365	639,594	781,726	※	※	583,756	665,990		※	583,756	※	※