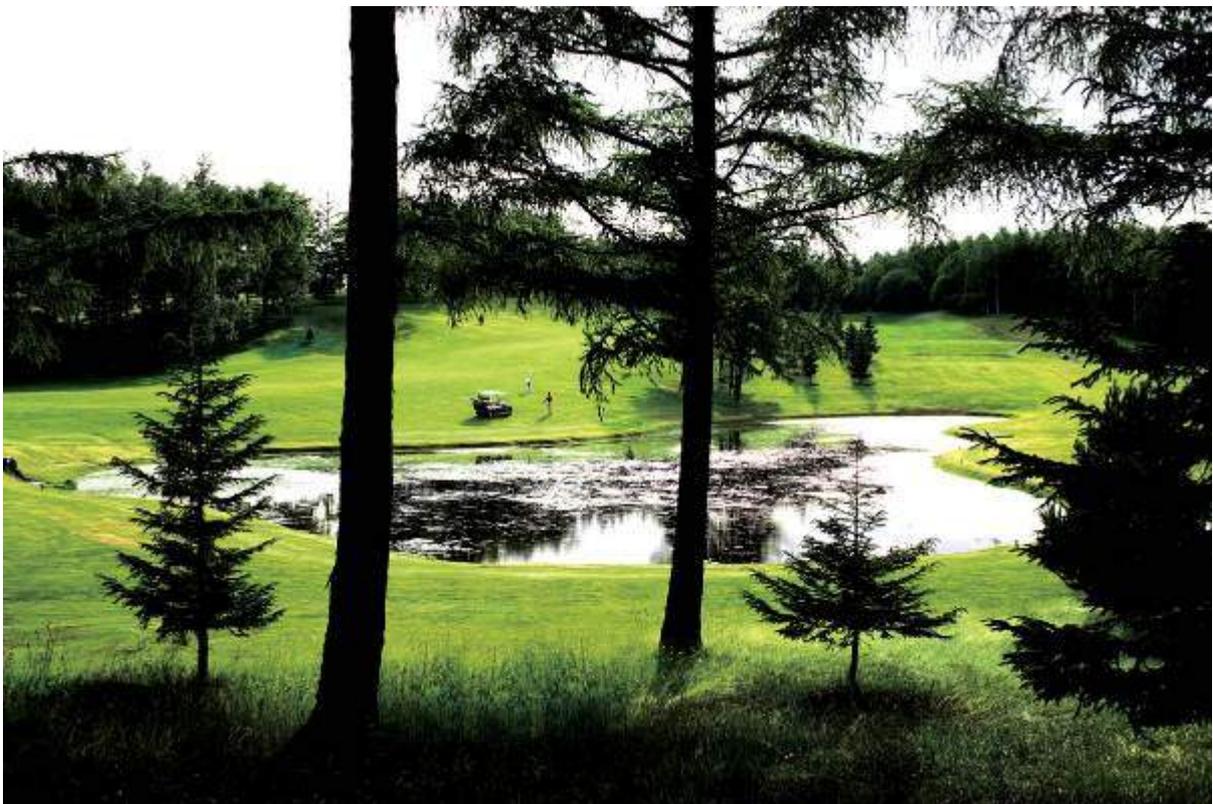


Yamaha Motor Monthly Newsletter



The "YDR" Golf Car

Spotlight: Golf Cars

June 15, 2013 (Issue No. 6)

Golf Cars

1.2 million “4-wheeled caddies” adding to the joy of the game



Yamaha Motor’s golf car business began in 1975 with the development and marketing of the first Yamaha Golf Car, the “YG292.” After that, the business was expanded in the two very different markets of Japan and the United States with a bigger lineup of models that had 2- and 5-seater size variations in both gasoline engine and electric motor-powered categories. Steady technological advances saw the introduction of new features like electromagnetic guidance and remote control systems, and in 2012, cumulative production of Yamaha golf cars in Japan and the U.S. reached the 1.2 million unit mark. In this month’s issue, we introduce the past and present of the Yamaha golf car business as it proceeds toward its 40th anniversary in 2015.

Pursuing a “multi-axial business” course through global economic hardship

The 1970s were an era of global economic uncertainty brought on by the Nixon Shock and oil crises. In Japan, which until then had enjoyed rapid economic growth, the effects were as dire as elsewhere. Now deprived of the stable currency exchange rates and cheap energy that had fueled its postwar “economic miracle,” the Japanese economy faltered and sank into negative growth that forced many corporations to take drastic measures to streamline their business operations. However, the course that Yamaha Motor chose in the face of the economic duress of the ‘70s was different and more aggressive than that of many other companies. After roughly two decades since the company’s founding and growth largely propelled by its motorcycle and outboard motor businesses, Yamaha Motor turned its helm to meet the hard times head-on with a “multi-axial business” policy. It was a plan to use the core competencies the



The Yamaha golf car business was a derivation of the land car launched in 1974. The photo shows the "OT11" land car model in use on the grounds of Yamaha Resort *Tsumagoi*.

company had built in small engine technology and FRP processing methods as the foundation to expand into new product businesses, entering the golf car, snow thrower and swimming pool businesses one after another. It was a land car (a small vehicle designed for short-distance transportation in leisure facilities, resort areas, etc.) that would become the base model for the development of the Yamaha golf cars to come, and this too was a new product line born under the company's multi-axial business policy. The first Yamaha land car, the "OT11" model (1974), was well-received in use at the "Yamaha Resort *Tsumagoi*" recreational facility that opened the same year and also at other leisure facilities around the country. However, the

number of such facilities in Japan at the time was small and thus offered little prospect for growth of a market for these vehicles. That led to a review of the possibility of developing a derivation of the land car in order to enter the far larger golf car market. At the time, demand at Japan's golf courses was already being filled by electric-powered golf cars manufactured and sold by domestic automakers and gasoline-powered models imported from the U.S. Predictions were that it would be very difficult for Yamaha to break into this market, but around the same time, survey results from America revealed customer dissatisfaction with the golf cars on the market in areas like engine durability, parts supply and servicing (vehicle inspection, maintenance, etc.). This led to growing expectations that offering solutions to these problems would make entering the far more lucrative North American market a possibility.

The first Yamaha Golf Car to come to market amid these conditions was the "YG292" (1975) which took the OT11 land car as its developmental base model and had space for carrying four golf bags. It was capable of climbing inclines of up to 30 degrees thanks to the powerful performance of its 2-stroke engine, which also featured low emissions and extensive noise reduction measures. The car's body weight was reduced by using proven FRP technology from the company's boat business which, in combination with the use of low-pressure tires, helped the Yamaha Golf Car win an excellent reputation for putting less wear on the grass of golf courses. Three years later, Yamaha came out with the "G1A" 2-seater model (1978) that at last led to the long-awaited entry into the U.S. market.



The first Yamaha Golf Car model "YG292" (1975). Two years later, the new "G1A" model was developed for export to the North American market.

Local manufacture begins in the U.S., the world's largest golf car market

Following the Nixon Shock and oil crises, the rapid appreciation of the yen on international currency exchange following the 1985 Plaza Accord sent a veritable tremor through Japanese manufacturers with large export markets like Yamaha Motor, and the damage was severe. The value of the yen rapidly rose from a pre-Accord exchange rate of roughly 240 yen to the U.S. dollar to more than 200 yen; a staggering increase that exceeded all predictions. At the time, the U.S. was Yamaha Motor's most important export market, accounting for approximately half of all exports, and considering the fact that the large majority of Yamaha golf cars were for the American market, the company needed to move quickly to enact sweeping changes to its production system.

Reacting with unprecedented speed and action to counter the crisis created by the Plaza Accord, the new North American manufacturing base Yamaha Motor Manufacturing Corporation of America (YMMC) was quickly established just outside



Established in 1986, YMMC is the first Yamaha Motor group manufacturing base in North America. Beginning with golf cars, currently, products sold primarily in the U.S. market are manufactured at its factories.

Atlanta, Georgia the following year. Golf cars were chosen as the new company's first product to go into production. Following the success with golf cars, YMMC today manufactures other products predominantly for the North American market, including Yamaha personal watercraft, ATVs and ROVs. In 2002, its production capacity was expanded with a second factory going into operation and other improvements.

Although "local manufacturing" has become the norm in industry today, at the time in the mid-80s, YMMC was Yamaha Motor's first large-scale overseas factory, and the challenges involved in starting up operations were immense. For example, with each design blueprint created in Japan, the lengths and weights all had to be converted from metric measurements into feet and pounds, which always resulted in fractions. At the time, there was still no established know-how for converting those fractions effectively and efficiently for mass-produced products. Moreover, in Japanese engineering, there was a practice of only drawing one half of the blueprint for a right-left symmetrical part in order to save time and effort. But that practice wasn't used in America, and one of the engineers involved at the time recalls the catastrophic result when bulk shipments of half-parts started arriving from suppliers!

Product variations to meet specific market needs

While Yamaha golf cars came to be manufactured in both Japan and the U.S. (the current manufacturer in Japan is Yamaha Motor Powered Products Co., Ltd.), the needs of the two markets were very different. For example, while the mainstream models in the U.S. are 2-seaters used by a pair of players without a caddie, 5-seater models that can carry four players and a caddie are popular in Japan. In Japan during '90s and the incredible boom in golfing that saw over 100 new golf courses opening a year around the country, this market-specific development and manufacturing system led to the birth of hit products like the "Turf Mate G6-A" (1985), a model for caddies that was driven standing up, and the "Turf Liner G17-A" (1996) that used a guidance system consisting of sensors to detect underground cables to enable autonomous driving and remote control operation. Meanwhile in America, new diversification in styles of play that involved use of golf cars on the fairways and rounds played by twosomes led to the birth of the YDR series models (2006) and more, increasing the lineup of variations to meet market needs.



The one-person-operated "G6A" model (1985) for caddies.



The 5-seater "G30A" is the mainstream model in Japan.



The 2-seater "YDR" model is the typical model in the U.S.

The Yamaha golf car business that started in 1975 with the launch of the YG292 is not far from celebrating its 40th anniversary. In 2008, cumulative production of Yamaha golf cars in Japan and the U.S. passed the one million unit mark and presently that number is approaching 1.3 million. And, with the number of new golf courses growing in emerging markets outside of Japan and the U.S. such as China and Vietnam, sales of Yamaha Golf Cars in these markets are also showing steady growth.

Message from the Editor



The “Yamaha Ladies Open Katsuragi” co-hosted by Yamaha Corporation and Yamaha Motor is a golf tournament officially sanctioned by the Ladies Professional Golfers’ Association of Japan (LPGA). The tournament brings in competitors from all around the world and is held every April when the sakura trees are in full bloom close to Yamaha Motor headquarters at the Katsuragi Golf Club (Yamana Course) in

Fukuroi, Shizuoka Prefecture. Of course, Yamaha’s golf cars are on the scene in this tournament and assist in making the event run smoothly in ways like helping players get around the course and serving as first aid vehicles.

Since we introduced the history behind Yamaha’s golf cars in this issue, let me give an example of how they have been used off the golf course. Take a look at the picture on the right. This small, model fire engine with two fire station staff aboard was actually built based on the 2-seater “YDR.” It was actually deployed to a fire station and is used for things like the region’s elementary school fire drills, PR activities and awareness campaigns. Since golf cars have a simple construction and almost anybody can operate one easily, there are many other examples of them being customized into a special vehicle and used like this. In Japan, these are called *tokusousha* (specially equipped vehicle) and they can be found in both leisure and industrial scenes. Isn’t it cute? For next month’s issue, we’ll introduce our personal watercraft business. Like the golf cars we focused on this month, these personal watercraft are also produced at YMMC. Please look forward to it!



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