

**Marketing New Marine Drive Concepts
Similar to Outboards and Stern Drives:
a Difficult Path for Independent Inventors and
Small Companies**

December 2005

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Forward

Think of the hardest thing you have ever had to do in your life and then triple it. That is how much effort you may have to put forward to try to reach the market with a new marine drive, and still fail. It is NOT an easy task. If you are up to seriously evaluating your design, spending thousands of hours and perhaps hundreds of thousands of dollars, in an attempt to reach the marketplace, read on.

This paper provides a brief discussion of the difficulties in reaching the market, specifically with drives resembling outboards and stern drives **targeting the mainstream market (40 to 300 HP)** and the almost insurmountable obstacles along the way. Part of the inventor's time will be spent learning about the marine drive market, its history and culture, and the companies involved. Dozens of companies, associations, organizations, terms and industry jargon are mentioned in this paper and purposefully not elaborated upon to encourage further independent study.

Most importantly, **DO NOT**, pick up the phone and call us or email us or any other companies listed in this paper until you have thoroughly read it, and invested at least a few hundred hours of your own time in refining your design, gaining an understanding of the market, the level of uniqueness of your design, and especially understanding the position of companies already in the industry. This report lists many companies by name that might be potential licensees or joint venture partners for highly refined, field tested drive designs IF they were contacted at the perfect time with the "perfect design" and given the "perfect presentation" by the "perfect team/inventor". If they begin to be contacted by a bunch of "nutcase inventors" who have not progressed past a napkin sketch and start complaining back to us about being mentioned here, we will take this paper down from our site and you will destroy a great tool for future marine drive inventors.

We (Polson Enterprises) do provide a wide range of resources assisting clients in developing new marine drives, but as mentioned above, please do not contact us about your design until you have spent considerable time studying this paper, our other papers referenced by it, and thinking about your design.

We welcome comments on this paper from all readers.
Please send them to: **polson@virtualpet.com**

Good Luck

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Introduction

Before investing large amounts of time and money developing a new marine drive, Independent Inventors should understand the difficulties that lie ahead. Among them are:

1. Potential paths to market for a marine drive that might result in money in an Independent Inventor's pocket are almost impossible to travel.
2. To be successful in this business, an Independent Inventor must invest hundreds of hours in understanding the industry in-side-out.
3. A project of this magnitude needs to be "balanced" in the "Six Areas of Balance". Instead of just working on the initial design/technical development of the drive, Independent Inventors must also attend to funding, marketing, intellectual property development, personal development, and developing professional contacts. Many inventions fail to reach the marketplace because Independent Inventors neglect one or more of these areas.
4. A new marine drive will probably need to be developed to a fully functional prototype running in a boat to attract a major potential licensee. Hundreds of thousands of dollars may be required to reach that stage of development.
5. If an Independent Inventor does obtain an audience with a potential licensee, they will need a very thorough, high quality presentation. Many Independent Inventors have no concept of the attention to detail needed to produce a high quality presentation.

Several individuals and small companies have successfully launched shaft type surface drives (Arneson, Dulger Direct Drive, Power Vent, Pulse Drive, Q-SPD, Simplicity, and many more), but these successes are NOT similarly found from individuals and small companies trying to market new drives somewhat similar to outboards and stern drives. Design, tooling and manufacturing of die cast aluminum housing, gears, shifting, and emission regulations present in outboards and stern drives provides a high barrier to entry for Independent Inventors, along with a limited number of very large corporations fighting for market share in a mature industry.

The early years of outboard engines saw hundreds of individuals and small companies enter the industry with different approaches, but the bar has been raised. Larger, higher horsepower, more complex drives with aluminum housings are much more difficult to produce. Outboard engines themselves have become extremely complex and use a wide range of technologies to achieve top performance while still meeting emission regulations. The only new companies to enter the mainstream marine drive market in recent years are in Asia (with the exception of the small Briggs & Stratton drive).

The purpose of this paper is to discourage Independent Inventors from proceeding to patent or develop a marine drive before they understand the difficulties and risks that lie ahead, and to improve the probability of success for those who decide to proceed.

The paper has six major sections:

Nine Paths to the Marketplace for Independent Inventors
Identifying Potential Licensees and Partners
Six Areas of Balance
Presentations
Avoiding Scams
Conclusion

Nine Paths to the Marketplace for Independent Inventors

Regardless of the product, Independent Inventors have nine basic paths to the marketplace.

1. Fund the Design, Manufacturing, Marketing, Sales and Service of the Product Yourself (your personal money, bank loans, loans from family and friends, SBA, credit cards, etc.)
2. Finance Development With Government Grants
3. Finance Invention With Angel Investors, Venture Capitalist and Venture Capital Funds
4. License the Invention
5. Team with a Joint Venture Partner / Strategic Partner
6. Form a Company, Sell Stock Locally or on a Stock Exchange (Stockholders fund the project)
7. Give Idea to a Relative or Friend (you make no money from it)
8. Give Idea to a Specific Company (you make no money from it)
9. Give Idea to the World (you make no money from it)

The accompanying *Recreational Marine Drive Commercialization Path Chart* shows these nine paths as they relate specifically to marine drives resembling outboards and stern drives.

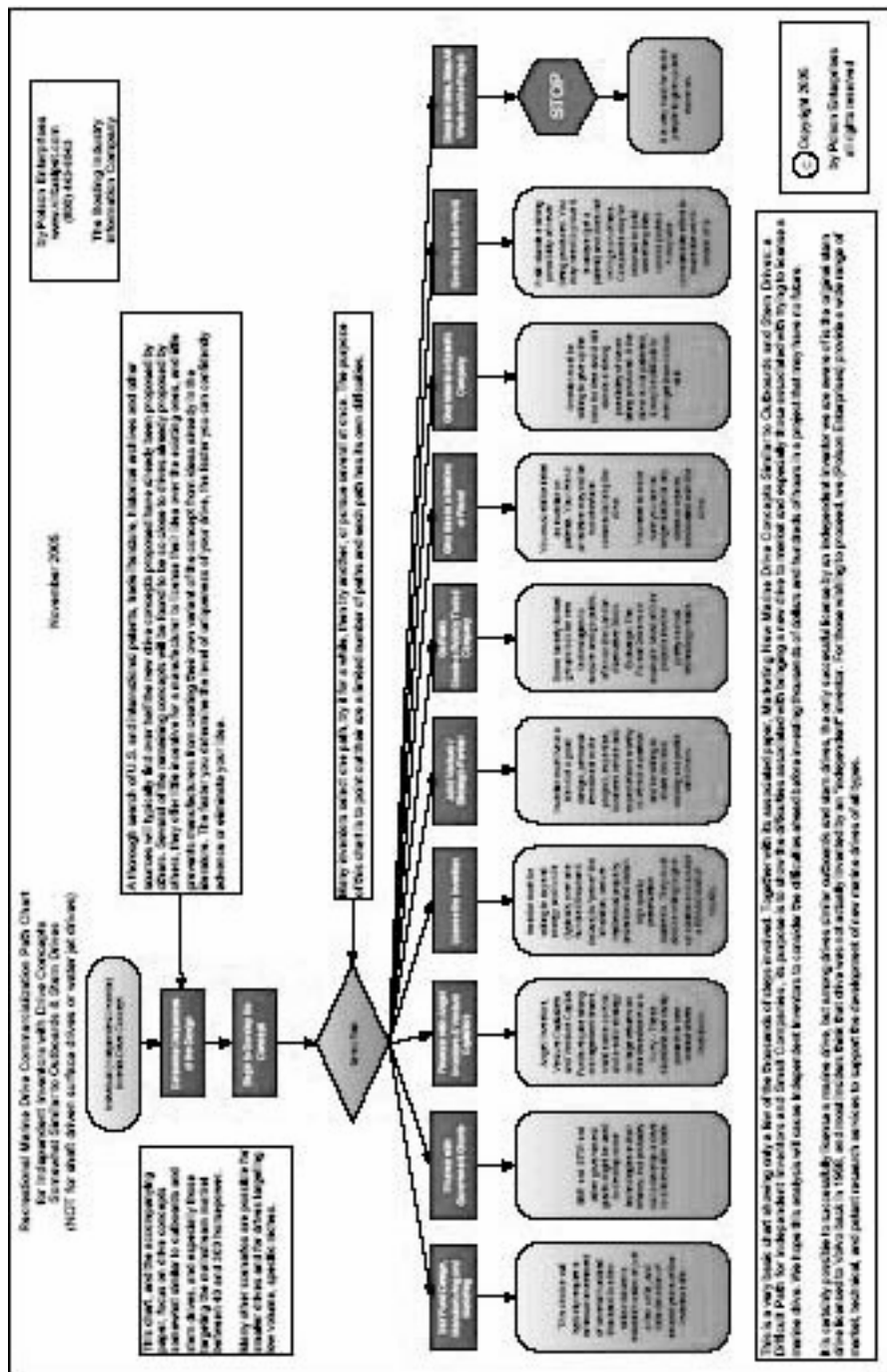
Most Independent Inventors want to license their drive, a few try to find a partner, some may eventually try other options after they exhaust licensing and partnering approaches.

Since most Independent Inventors want to license their drive, the next section focuses on identifying potential licensees. Some of the companies mentioned might also be Joint Venture / Strategic Partner candidates. Other potential paths to market are briefly discussed on the accompanying *Recreational Marine Drive Commercialization Path Chart*.

Recreational Marine Drive Commercialization Path Chart

A large (11 X 16 inch) .pdf color version of the chart below is online. It can be reached from: <http://www.virtualpet.com/rtools.htm>

Independent Inventors might find it helpful to print a color copy at a nearby Kinkos and put it on the wall.



Identifying Potential Licensees & Partners

This section enumerates possible types of companies and specific companies that might be potential licensees. Although the list of categories may appear lengthy, the actual specific targets for a given drive are very few.

Categories of Potential Licensees

- Current U.S. Manufacturers of Outboards and Stern Drives
- Foreign Manufacturers of Outboards and Stern Drives
- Major Drive Rebuilders
- Engine Manufacturers With Ties to the Marine Industry
- Recreational Marine Gearbox / Transmission Manufacturers
- Marine High Performance Manufacturers and Racing Shops
- Marine "Will Fit" or Replacement Part Manufacturers
- Marine Jet and Marine Surface Drive Manufacturers
- Marine Turbine Manufacturers and Rebuilders
- Commercial Drive Manufacturers and Bow Thruster Manufacturers
- Industry Segments That May Need a Marine Drive
- Manufacturers of Large Industrial Mixers
- Companies With No Related Experience or Presence in the Marine Industry

A brief analysis of each Potential Licensee category follows along with a discussion of how interested they might be in new marine drive concepts from Independent Inventors and why.

U.S. Manufacturers of Outboards and Stern Drives

Brunswick/Mercury Marine/Mercruiser is currently the only U.S. manufacturer of both outboards and stern drives. A few much smaller U.S. manufacturers exist, mostly supplying:

1. Stern drive repower market (**Konrad Marine, Sterndrive Engineering/SEI, SternPowr/American Propulsion Systems**)
2. Hydraulic powered drives (usually for small commercial vessels like **Sykes Hydromaster** and **Thrustmaster**)
3. Shallow water drives (**Bog Hog Mud Motor, Go-Devil, Scavenger Backwater Motors, Stump-Jumper**)
4. Very small outboards (**Briggs & Stratton**)
5. Small electric trolling motors (**Johnson Outdoors/Minn Kota** and **Brunswick/MotorGuide**)
6. High performance / racing drives (**IMCO, Weismann Marine, The Bravo Shop, Brunswick/Mercury Racing**) .

The dominant U.S. manufacturer, Brunswick, is a very large company and does not have an established history of successfully working with independent inventors. The smaller manufacturers might be targets for innovations that happened to blend well with their product lines, but their production volumes are quite low, except for the electric trolling motors.

The Bombardier Family (of Canada) does produce Evinrude outboard drives in Wisconsin. They are discussed in the foreign manufacturer section.

Brunswick is the obvious target in many inventor's minds, but most Independent Inventors have no concept how hard it can be to get an audience with them, how "fixed" they are in their ways due to tremendous investment in tooling for existing drives, their aversion to risk, the almost guaranteed large volumes required to interest them, and the "not invented here" syndrome present in many large companies. This makes the most logical target for potential success in the marketplace (Brunswick) the most difficult to engage in meaningful dialog, at least until the drive has shown strong success in the marketplace. They do have a long history of acquiring companies in the marine industry. So if an Independent Inventor was actually able to make it to the market place and show strong initial success, an audience could probably be arranged.

Foreign Manufacturers of Outboards and Stern Drives

Bombardier (a French company) purchased the Evinrude and Johnson marine drive brands from **Outboard Marine Company (OMC)** at OMC's bankruptcy sale in 2001. They were combined with other **Bombardier** recreational products to form **Bombardier Recreational Products (BRP)**, which was sold in 2003 to a group mostly controlled by the **Bombardier** family. The major disruptions of the OMC bankruptcy, relocation of marine drive manufacturing operations to Sturtevant WI, sourcing some of the **Johnson** four-stroke drives from **Suzuki** and the subsequent sale to the Bombardier family has left **BRP's Johnson and Evinrude** drive products struggling for market share, making them a poor candidate for licensing or partnering any drive requiring significant deviation from their current production drives. Plus, U.S. inventors dealing with a Canadian company (actually a group of several entities) introduces additional complexities to an already difficult process.

Volvo Penta of Sweden has the primary European drive presence in the U.S. They manufacture stern drives in Lexington TN and maintain a U.S. headquarters in Chesapeake VA, but at least a portion of their new product development efforts and decisions occur in Sweden. They do not currently produce outboards and are devoting much of their new product efforts toward broadening applications of their recently introduced IPS (through hull) drive. Volvo Penta has released several innovative drives (original manufacturer of the stern drive, duoprop, Ocean series composite drive and now the IPS drive), but their current concession of the outboard market to other manufacturers, language barriers and distance barriers combined with the already allocated efforts of many of their R&D resources to expanding applications of the IPS drive make them a poor or at least difficult candidate for licensing or partnering for most Independent Inventors.

Japan has made tremendous strides in the U.S. outboard market. **Yamaha Motor** (has been producing some powerheads for Brunswick), **Honda Marine** (known for its four strokes), **Tohatsu** (has a joint venture producing small four stroke outboards for Brunswick), **Nissan** (built by Tohatsu), **Yanmar** (sell several diesel outboards) and **Suzuki** (winner of many recent innovation awards) all only sell outboards in the United States. Yamaha does sell some stern drives outside the United States. Distance, language barriers, culture, their concession of the U.S. stern drive market to Brunswick, and their lack of history of successfully dealing with U.S. Independent Inventors make them a poor or difficult candidate for licensing or partnering for most inventors.

A few Japanese companies make specialty outboards for the Asian market, including **Yamoto** (stadium racing outboards). These companies live off niche foreign markets and are poor licensing choices for Independent Inventors trying to reach mainstream U.S. markets.

Other Japanese companies, such as **Tayako Motors Japan**, produce small outboards for sale primarily outside the U.S. and still more Japanese companies like, **Tanaka**, are beginning to sell small outboards in the United States. Companies only producing small outboards are poor licensing targets for larger "mainstream" drives.

Some companies manufacture outboards and do not market their products in the U.S. - the most well known of these is **Selva Marine** of Italy. It is said they may receive some of their engines from Yamaha. **Ruggerini** makes small diesel outboards in Italy and does not market them in the U.S. Selva and Ruggerini's absence from the U.S. market, focus on smaller outboards, distance and language barriers make them a poor candidate for licensing or partnering for most Independent Inventors.

Sillette-Sonic of the U.K. produces stern drives primarily for sale outside the U.S. The absence of language barrier might make them an attractive target for inventions resembling stern drives, but their limited market exposure is a liability.

European companies have always seemed more willing to produce products involving die cast (or sand cast) aluminum bodies and machined shafting in lower quantities than U.S. companies (hydraulic pumps and motors are an example). **Saro** produces a tunnel drive in Germany with limited U.S. distribution that strongly resembles a stern drive. The **Stern Powr** stern drive was there for a while, **Sillette-Sonic** is still there, **Enfield Z-Drives** and **Transa** drives, both of the UK (no longer in production?) are more examples. European drive manufacturers might be possible targets for innovative drive manufacturers or partners, but language problems, distance, legal issues and their limited distribution (except for **Volvo Penta**) makes them less than optimal targets.

Some small outboards are starting to pop up in China, like those from **Alima**, **Star**, **SAIL**, **Takt**, and **Zongshen Motor** (sometime called **Chongging**). We anticipate many more to follow. China is very hungry for products to manufacture, but many U.S. manufacturers outsourcing manufacturing to China encounter "copying" problems and are also concerned about the availability of their products as political unrest with the United States remains in the news.

Other Asian Countries are also entering the outboard market (**Taiwan Marine Engine (TME)** and **Sun Jin Dynamics** of Korea).

Very few companies have publicly announced their intention to enter the outboard or stern drive market with a product of their own design. Among them is **Vortech Marine (PTY) Ltd.** renamed **Cosworth Marine**. Note, this Vortech Marine (PTY) Ltd., is not to be confused with Vortech Marine a brand name used by the U.S. high performance auto/marine manufacturer, Vortech Engineering. Companies preparing to enter the drive market are already strongly tied to their own designs. You might be able to interest them in minor enhancements, but not in a new drive design.

Brunswick is also a major producer of outboards outside the United States. They make 40-60 HP four stroke outboards in China, produce small outboards in Mexico, and have a joint venture in Japan with Tohatsu.

Major Drive Rebuilders

Due to the large populations in the field, most rebuilders focus on outboards. One of the more substantial units, Mercury's **Quicksilver Repower** is controlled by Brunswick. Rebuild operations in general might prove to be a good source of prototype engine parts. Most are machine shops focused on rebuilding powerheads, and unlikely candidates for manufacturing drives.

Engine Manufacturers With Ties to the Marine Industry

Some U.S. automotive engine companies have strong ties to the industry. **General Motors (GM)** currently produces most of the stern drive engines. **Ford** currently produces some engines used in inboards and was rumored a few years ago to be considering teaming with Yamaha to produce stern drive engines. Marine engine production volumes are a mere "drop in the bucket" compared to automotive engine volumes. Individual automobile engine plants are used to cranking out a few thousand engines a day, while U.S. stern drive production is a few hundred units a day. These volumes are of minimal interest to automobile manufacturers. Relatively small market size, the huge corporate structure of U.S. automotive companies, and the current financial beating U.S. auto manufacturers are taking from the Japanese make them poor candidates for licensing or partnering with Independent Inventors. Plus if you have never tried to approach a company of this size before, it can be pretty comical just trying to reach a real human being.

Japanese automotive companies are strongly focused on building (or holding) U.S. market share, emerging markets in China and competition from China. They have little time to devote to Independent Inventors of marine drives.

Several diesel engine manufacturers have ties to the marine industry. **Cummins** made news several years ago when they announced a partnership with **MerCruiser (Cummins MerCruiser Diesel)**. They recently announced a jet drive package, but seem more focused on developing a cooperative relationship, than developing new drives or expanding MerCruiser's current line of drives. Other diesel engine manufacturers (like **Caterpillar**, **John Deere**, etc) might be potential targets to purchase or partner on finished products, but the probability of one of them actually licensing a drive from an Independent Inventor seems pretty remote. The current growth of larger boats might interest one of them in marketing (but probably not producing) a new drive focused at larger boats. For example, Trailer Boats August 2005 issue reports Yamaha is rumored to be considering producing a 350 to 400 HP gasoline powered outboard for diesel powered boats over 30 feet. Diesel manufacturers might also be interested in a piece of this growing market.

Smaller specialty / high performance engine manufacturers like **Cosworth** are more easily approached. However, as mentioned earlier, **Cosworth** may already be developing a drive of its own. Several engine designs have recently entered or been proposed for the experimental aircraft market. Of this group, **Dyna Cam**, has announced its interest in the marine industry, but little appears to have actually happened. Designs that might have specific advantages when teamed with specific specialty / high performance engines might be able to find a joint venture partner in the specialty, high performance engine business, or from the experimental aircraft industry, but Independent Inventors will probably find it very difficult to license a drive to one of them.

Recreational Marine Gearbox / Transmission Manufacturers

Hundreds of companies manufacture gearboxes. Several manufacture transmissions specifically for the recreational marine industry including: **Advance (Hang Zhou)**, **Capitol Gear** (parts now built by **PRM / Pacific Rim Engineered Products** to the original drawings), **Hurth** (acquired by **ZF**), **Koysan**, **Newage PRM**, **Nico** (joint venture between **Twin Disc** and **Niigata Engineering** of Japan), **Paragon**, **Regal Beloit** (acquired the **Velvet Drive** transmissions from **Borg Warner**), **Reintjes** (more work boat than pleasure boat oriented) **Technodrive**, and **ZF Marine (ZF)**.

Some of these marine transmission manufacturers are beginning to establish a presence in the drive market. **ZF**, a German company, has already partnered with a surface drive company. **Twin Disc** currently sells Arneson drives, jet drives and Zeta drives. **Dana** once built a stern drive called **Stern-Powr**. Most marine transmission manufacturers have established service centers and recognized names. They might be among the most approachable candidates, but they are a long ways from the main stream marine drive market. They may be a venue to sell drives through, but are probably not interested in actually licensing drives not yet proven in the marketplace.

Marine High Performance Manufacturers and Racing Shops

Some of these companies already produce their own marine drive (they were mentioned in the drive manufacturers section). **Vortech Engineering/Vortech Marine** is perhaps the best known among the remaining companies in this group. They and others like them focus on high performance parts and have few connections to "everyday" boaters. If they were to produce a main stream drive, they would have to move into an entirely different market (and cost structure). Companies in this area might be a target for a high performance drive, but not for a mainstream drive.

Marine "Will Fit" or Replacement Part Manufacturers

Konrad Marine, now a stern drive manufacturer, came from this path. They built "will fit" parts for MerCruiser drives for several years, then moved over to producing stern drives themselves (mostly for the repower market and small commercial craft).

A few manufactures solely provide parts for "out of date" marine drives and transmissions. **T.C. Electronics** focuses on OMC stern drives, **British Seagull** supports their old Outboards, **PRM / Pacific Rim Engineered Products** provides parts for the old **Capitol Gear** transmissions and **W.W. Williams Distribution** provides parts for a host of products no longer manufactured, including **Allison Marine Gear**. Companies like **PRM** and **Williams** might be targets for manufacturing parts for a new drive, but it would probably prove very difficult to license a new drive to them.

Yang-Xian Products Co. Ltd. of China is an example of several Chinese and Taiwanese companies producing a wide range of service parts for existing outboards and stern drives. As mentioned earlier, dealing with Chinese firms (especially those already in the copying business) could lead to intellectual property issues.

Sierra Marine (a **Teleflex** Company) is primarily a distributor of marine drive and boat parts, but does manufacture some items. They are in a position to use their connections to source drive parts, but are currently only known as a "parts house". Some combination of Sierra and their parent, Teleflex, might bite at the rare perfect opportunity. However, like **Brunswick**, **Teleflex** does not have an established record of working well with Independent Inventors.

Marine Jet and Marine Surface Drive Manufacturers

Dozens of companies produce surface drives and jets in a wide range of configurations. **Hamilton Jet** of New Zealand and **France Helices** (manufactures the Surface Drive System (SDS) of France) are examples of companies in this category. Most do not have the in-house gear design, shifting design, and aluminum die cast capabilities needed to manufacture drives resembling outboards or stern drives.

Marine Turbine Manufacturers and Rebuilders

Several groups rebuild turbines for high performance recreational marine use. **MTT** is perhaps the best known in this field. They and others tend to focus on their turbine expertise, not on marine drives. However, MTT has built a turbine outboard. In general, these companies are focused on a niche market and not a good target for licensing "main stream" marine drives.

Commercial Drive Manufacturers and Bow Thruster Manufacturers

Some companies are well known for producing commercial marine drives for workboats, fishing vessels, tugs and ships. Some of these companies and others also produce bow thrusters. A few commercial drives and bow thrusters are working their way down into the yacht market and some bow thrusters are even beginning to appear on smaller boats. For example, **Schottel** of Germany produces large drives that look like stern drives and **Vetus** produces bow thrusters. Companies like these normally sell their drives to shipbuilders NOT boatbuilders. If you found a company in this field that recently changed hands or was struggling, they might possibly be open to new markets, but in general they will be a very hard sell, and they currently have no presence in the main stream recreational drive market.

Industry Segments That May Need a Marine Drive

As we previously wrote, (U.S. Commercialization of Innovative, Propeller Driven, Recreational Marine Drive Designs: Some Thoughts From the Trenches An RBBI White Paper) the recreational marine drive market is quite unique. Strong vertical integration by **Brunswick**, only a few major players, Independent Boat Builder Buying Groups, captive boat companies, and Genmar make it an unusual playing field. The "hate" some Independent Builders have for **Brunswick** (sells them drives, then sells boats against theirs) might create an environment some might band together to fund an alternative. The **Independent Buying Groups (ABA, UMMA, IBBI, AMMG)** might be an entry point for a conversation of that nature. Similarly, **Genmar's** dislike for Brunswick and their ever decreasing alternatives might make them at least a potential strategic partner if everything looked perfect from their perspective.

Bass Pro / Tracker probably feels alienated by **Brunswick's** recent purchase of Triton. A perfect situation might interest **Tracker** as an alternative source of supply, after it was proven in the field, but probably minimally from a development / licensing standpoint.

If a drive had tremendous advantages for a boat type having many small builders (like pontoon boats and houseboats), it might be possible to get a group of small builders to at least be involved in the development process. Sometimes that can be a tremendous help as much can be learned from their experience and incorporated into the product. Most small builders are too focused on meeting their own financial needs to actually invest in a new marine drive design.

Manufacturers of Large Industrial Mixers

Some large industrial mixers used to mix food, chemicals, and other fluids in huge vats and even in railroad tanker cars resemble outboards and stern drives. Powered by electric motors, they use gearing or belts to reduce the speed, and are available in inline and right angle (sometimes called side entry) versions. Due to food and chemical processing demands, many components are made from stainless steel (corrosion resistant and easy to clean). Manufacturers include **Hayward Tyler**, **Cleveland Eastern Mixers/EMI**, and **Sharpe Mixers**. Large mixers drive propellers/impellers and eerily resemble marine drives. **Sharpe Mixers** even has a page online talking about the advantages of three blade marine propellers as mixing impellers.

These companies, and companies like them tend to purchase electric motors, cast or outsource casting of housings, purchase gears, wiring, then assemble and provide the "know how" surrounding their products for industrial use. Industrial mixers are typically designed to last for thousands of hours of near continuous operation, often at near continuous loads. This is vastly different from the few hundred hours of full throttle operation used to simulate the life of a marine drive. Their applications, "know how", marketing expertise, component suppliers, field service people and whole lives are spend outside the marine industry. Although their industrial mixers resemble marine drives, it would be a very big (but not impossible) step to interest one of them in stepping across.

Companies With No Related Experience or Presence in the Marine or Drive Industry

Companies with no experience in the marine industry would have to develop engineering, manufacturing, marketing, sales and service organizations in a different, highly competitive industry. Years ago, that could be accomplished by acquiring a small outboard manufacturer, but industry consolidation has all but removed that option. Large companies with strong gear box and casting abilities in other industries like **Borg Warner** (previous builder of the marine Velvet Drive transmission), **Dana**, and **Eaton** could probably come up with the technical know-how, but most are strongly focused on the automotive and trucking industries. They are very large companies, currently fairly unassociated with the recreational marine market, and very difficult for Independent Inventors to navigate.

Smaller companies with no experience or presence in the marine industry would have difficulties coming up with the expertise, equipment and financial resources necessary to produce a marine drive resembling an outboard or stern drive.

Thoughts About Potential Licensees

The bottom line is, there are NO easy licensees or partners out there. Independent Inventors need to understand that. New marine drive designs that resemble outboards or stern drives will be incredibly difficult to license. That is partially why so many water jets and surface drives have entered the market in recent years. They are much easier to manufacture, require less capital investment (equipment and tooling) and can be supported by much smaller companies.

We tried to list the categories of potential licensees roughly in the order of decreasing probability of success in the market place for a drive resembling an outboard or stern drive built by them. Major United States manufacturers (Brunswick) probably have the greatest potential for success in the marketplace with a new drive design (look at the Verado), while those with no current experience or presence in the industry probably have the least potential for success.

However, the probability of an Independent Inventor developing a meaningful dialog with a company is probably almost in the reverse order. An Independent Inventor probably knows someone at company unrelated to the marine industry that will at least listen to them, while they may find it practically impossible to secure a similar conversation with Brunswick. The alternatives in the middle probably lie somewhere along that continuum.

A few Independent Inventors may have an inside track to a specific company in the marine industry (previously worked for them, worked in one of their dealerships for many years, next door neighbor or brother-in-law is an executive at the company, dating the CEO's daughter, etc). These "facilitators" can help grease the wheel and greatly improve the possibility of the "Independent Inventor" at least striking up a conversation with the company, but they will still face the difficulties mentioned earlier to move past the social contact stage.

Independent Inventors need to identify, cultivate and grow any "edge" they may have in dealing with potential licensees. For example, some inventors may be fluent in a foreign language, have lived outside the United States, have a spouse from a foreign country, have a child living overseas or other connections making it easier for them to deal with a specific marine company outside the United States than the typical Independent Inventor. Identifying these types of advantages can help Independent Inventors determine which potential licensees might be easier to approach than others.

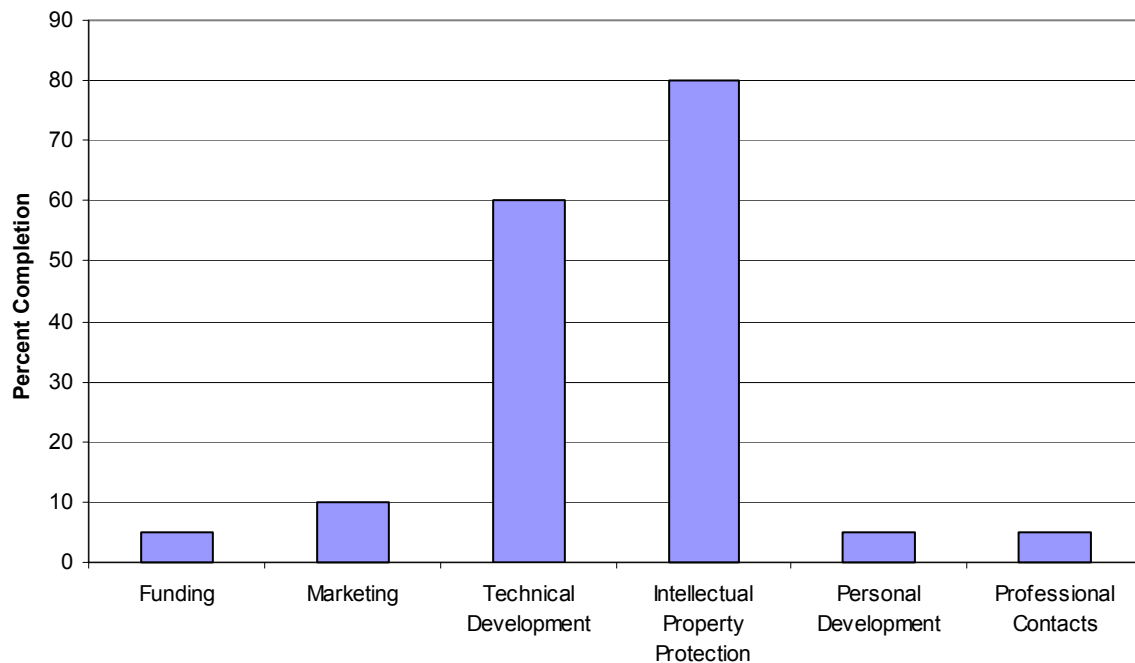
Back to the amount of time and investment required to launch a new drive, Brunswick reports it invested five years and \$100 million in their Verado. Profile, Brunswick's employee magazine, Summer 2005 issue reported 23 Verado patents have been issued with an additional 6 still pending. This is a tremendous amount of investment. Companies are very reluctant to even discuss new drive designs realizing that kind of investment might be required to reach the marketplace.

Six Areas of Balance

Independent Inventors often focus on technical development at the expense of other areas. We encourage inventors to try to keep funding, marketing, technical development, intellectual property protection, personal development and professional contacts all moving along, reasonably in step with one other. These six areas will need continual attention throughout the life of the marine drive.

We often encounter projects where Independent Inventors have pursued technical development and patents without really thinking about the market, if they have enough money lined up to get the invention to market, not taking opportunities to develop themselves professionally and failing to develop high quality contacts that can help them get their invention to market.

Example of Poor Balance of the Six Areas



The six areas will never be in perfect balance, but they should be much closer than in the chart above. Each area is briefly discussed in the following sections.

Funding

Independent Inventors need to establish a relationship with a banker, gain an understanding of angel and venture capital funding, inventory their personal assets (house, vehicles, investments, retirement, etc), decide if they will attempt to borrow money from their family (and how much that might be), evaluate the use of "credit card loans", seek investors, and explore other potential funding opportunities including government grants. As the project progresses they need to make sure they have the money lined up to complete future steps. Independent Inventors Should NOT approach market research firms, prototype shops, patent firms and others and tell them they need help but have no money. A few small firms may be willing to provide some level of assistance if you are invested to the hilt, but they may require a major stake in the project. If the inventor has no risk in it, why should they? Bankers are very hard sells on inventions, and are certainly not going to make a loan unless the Independent Inventor has a substantial risk in its success.

Angel and Venture Capital investors in the region and others that may focus on the marine market should be identified (like Marine Angels).

Financial planning charts and spreadsheets need to be developed showing major planned expenses (prototypes, tooling, consultants, patents, facilities, travel, certification, packaging, marketing, licensing, grant writing costs, salaries, training, etc) and explain how that money will be in place when it is needed. Even if the inventor anticipates a licensee pickup up some of those costs, they need to understand how much they are and when they will occur.

Independent Inventors need to plan how they will meet their own living expenses (and that of their family) while they devote a few years of their life developing a marine drive without a source of outside income and to recognize most projects like this are never completed on time and on budget.

Manufacturing, distribution, warranty, service, product liability, overhead, and other costs surrounding the drive need to be estimated and compared with actual selling prices of current drives. Is their sufficient margin for profit compared to other drives? Eventually the drive has to "fund itself" and generate a profit besides.

The high costs required to develop and test a marine drive resembling a stern drive or outboard are a major reason so few reach the market from those outside the industry.

Marketing

There are thousands of steps involved in commercializing a drive. One of the most important and most often overlooked, is identifying its specific advantages and disadvantages (yes it has them too). Those advantages and disadvantages can be used to identify the exact type of craft, applications and users that would find the drive to be of the greatest advantage and be least impacted by its shortcomings. For example, a new, economical (at the expense of some features), power dense drive that barely rises above the transom might be especially of interest to beginning bass boaters (economical for beginners, power dense means they are light and allow even quick takeoff and higher speeds for a given horsepower, minimum height above the transom would make them easier to fish over). Identifying a target market instead of just shooting at the field greatly improves the drive's potential for success.

Once specific applications are identified the number of drives used in those applications can be estimated from industry data. BUT, before you begin to think about acquiring a certain percentage of that market, you need to understand who is producing those drives today, which boat companies are using them, which ones are independents and which ones are captive. An upstart drive company will not be able to sell drives to a Brunswick boat company because they use Brunswick drives. One of the major reasons Brunswick acquired so many boat companies was to acquire captive transoms.

The cost to manufacture your drive will need to be calculated along with the manufacturing cost of your competitors (or at least a relative costs vs. your drive). Current cost to boat builders and retail pricing of competitive drives will also need to be identified. A comparison of costs vs. benefits will need to show very strong reasons to switch to your drive.

A few other elements of the marketing area are:

1. Getting consumer input on your drive at various stages.
2. Study J.D. Power Marine boat and drive data. They provide a wealth of data of current problems and opportunities for drive designs.
3. Perform in depth market research on major drive and boat companies to understand the market, along with historical market volumes and market shares.
4. Develop high quality, easy to understand presentation materials and models.
5. Understand the difficulties and issues surrounding a "one product company".
6. Understand the seasonality of the marine drive manufacturing industry
7. Study the ITC Final Report on the Japanese Outboard Dumping case
8. Understand potential licensee's better than they understand themselves (know everything there is to know about the company, people, their culture and history).
9. Develop a one page document that describes the drive, its advantages and disadvantages, the target market, how that market is being served today, existing intellectual property, and anything else necessary for some to rapidly grasp the entire situation.
10. Think of ways the drive might be "positioned" in the marketplace (premium drive, innovative drive, low cost alternative, etc) and ways that placement could be reinforced.

Technical Development

Approaching large companies with potential licensing opportunities when the design has not been proven in the field is very difficult. Typically, the larger the company, the greater their aversion to risk. The further along a drive design is (napkin sketch, engineering sketches, 2-D CAD drawings, 3-D CAD drawings, computer model, mock up, major parts prototyped, testing of prototype sub-assemblies, full prototype, fully functional prototype, shop tested prototype, field tested fully functional prototype, multiple prototypes running in several environments) the more probable the design is actually technically feasible. It is difficult to get large companies to look at a drive that has been proven in a boat, and almost impossible to get them to look at anything less developed.

Independent Inventors need to understand the unique gear and shaft design /selection techniques used by an industry designing to a few hundred hours of life under full power in a quest to reduce shaft sizes and make gear cases more hydrodynamic.

As the design progresses and problems begin to surface, Independent Inventors will probably encounter some of the ones listed below.

1. Gearing, shafting and shifting problems (forward, neutral, reverse, and possibly multiple forward gears)
2. Figure out what to do with the exhaust
3. Find room for a water pickup and speedometer pickup
4. Figure out how to trim the drive
5. Figure out how to vertically trim the drive (outboard jack, vertical trim)
6. Figure out how to deal with log strikes (many designs use special cylinders allowing the drive to fly up and then settle back down)
7. Design or find standoff boxes if needed
8. Identify a series of propellers that seems to meet the needs of the drive (diameter, pitch, number of blades, cupping, shaft size, material, etc.)
9. Anticipate emission regulations / compliance issues
10. Solve steering problems (force, feel, feedback, fly by wire, chattering/stability)
11. Solve sealing problems (isolate passages inside the drive, prevent external leaks and prevent water from entering the boat)
12. Address drive lubrication and cooling issues
13. Find out hull modifications are needed (steps, tunnels, special transoms). Requiring special hulls can "sink" the project. Optimally, the drive will "plug and play" in the current accommodations.
14. Try to maximize use of existing parts and hardware
15. Minimize tooling and assembly costs
16. Corrosion issues / anodes
17. Casting porosity issues
18. Fuel tank and fuel line safety and environmental regulations
19. Fire issues and testing
20. Meeting ABYC and other industry standards

When the inventor finally begins to get the drive in the water more issues may arise, handling, tracking, steering forces, blowout and more. These will need worked through as well. About now the Independent Inventor begins to understand why a "Mega Corp" did not want to license the drive design when they showed it to them on a napkin sketch. "Mega Corp" knew lots of problems and risks were ahead.

Intellectual Property Protection

Once the Independent Inventor develops the concept, they need to conduct patent and literature searches to make sure the design is actually unique. PLUS it will need to be unique enough from existing approaches to attract investors and potential licensees. If the design closely resembles several prior approaches, licensees have no reason to license the drive instead of someone else's.

Some of the many areas Independent Inventors need to begin to understand are;

1. The U.S. Patent system, its types of patents, classifications, provisional patents, etc
2. USPTO fees
3. Approximate costs to write and prosecute a mechanical patent
4. Establish a relationship with a patent attorney or patent agent (and know the difference)
5. The tremendous costs associated with patent infringement cases
6. How to properly mark patent pending and patented items
7. How patent claims are written and their importance
8. What must be disclosed in a patent
9. How to keep a well documented, dated, witnesses inventors logbook
10. Which kinds of patents if any are best for your situation
11. Should I continue to file additional patents as the drive becomes more refined and improved?
12. What about foreign patents?
13. Inventors need to continually monitor patents in the area, it is not a "one time" search
14. The potential to use some elements of existing patents in your drive (learn from them)
15. Understand everybody listed as an inventor has full rights to a patent unless they are assigned

One area rarely addressed is what we call a "Marketing Patent". Patents written by major manufacturers are often somewhat vague in exactly how they are produced or work, or at least in the exact approach the manufacture intends to use. They do this on purpose to hide information from their competitors. When they file the patent they must reveal the approach they intend to use, but it may be mixed in with dozens of other approaches to mislead readers. These same companies also rarely provide market research information or technical data in their patents.

"Marketing Patents", on the other hand, tell all. They are freestanding commercials to investors and potential licensees, clearly revealing the exact approach anticipated by the inventor. They discuss why their method is better method than others, sometimes including technical research/performance data to backup their statements. "Marketing Patents" may also include market research data (industry product sizes and volumes). They are much easier to read and understand than patents from major manufacturers because they are written as a selling document. "Marketing Patents" tend to be lengthy compared to similar patents, including more drawings, patent references, cite other reference materials, and have more claims. They are not widely used by Independent Inventors, but are more frequently used by startup firms developing specific technologies looking for investors, partners and possibly and exit strategy (buyout). Occasionally similar types of patents are assigned to the U.S. government. Universities and technical research firms file "Marketing Patents" assigned to the government when they complete government funded research in an attempt to show what a good job they did. They stand as marketing documents encouraging the government to hire them next time. In this case they are marketing their services instead of marketing the invention.

CONTINUED

Few "Marketing Patents" are filed for marine drives. Most independent inventors do not understand the concept. Existing drive companies do not file them because they are not trying to sell their designs (they want to sell products, not designs) and they do not want to reveal unnecessary information to their competitors. U.S. Patent 6,662,549 by Pursuit Dynamics has some characteristics of a "Marketing Patent". It explains their marine "steam drive" in greater detail than most drive patents, probably in an effort to continue to interest investors in the company.

If Independent Inventors are strongly thinking about licensing their drive, understand costs and risks associated with patents, and feel their project has a high probability of success after considerable study of all the issues raised in this paper, they might want to consider filing a "Marketing Patent".

Personal Development

Few independent inventors have the skills necessary to launch a marine drive. They need to hone the skills they have and develop the ones they need. For example, if an Independent Inventor has not recently taken a college marketing class, they might enroll in one, or at least buy the textbook and study it. They will also need to study international marketing, even if they do not intend to license their drive to a firm outside the U.S. or market it outside the U.S. With several major international competitors in the marine drive market, inventors need to understand how drive manufacturers outside the United States see the market and what issues important to them. You cannot beat the competition if you do not understand them.

An amazing number of Independent Inventors have no Internet skills. Inventors must learn how to use the constantly expanding abilities of the Internet or they will left behind. Major successful new products just flat cannot be developed and launched without Internet skills.

A few additional areas Independent Inventors might consider developing are:

1. Public speaking skills (Toastmasters might be a possibility)
2. Accounting skills
3. CAD drawing skills
4. Understanding technical drawings
5. Understanding business types and taxes in your state
6. Attending major industry trade shows and industry meetings
7. Learn how to apply for SBA, SBIR, STTR money
8. Meet with a local SCORE representative
9. Understand branding
10. Read and study everything about the industry you can get your hands on
11. Understanding the U.S. and International patent systems
12. Patent searching skills
13. Project management skills
14. Learn how to dress to make a successful presentation and obtain any clothes, materials needed
15. Keep an eye on China they are coming fast

One often overlooked area is developing a good working relationship with the small business group at a local Vocational Training / VoTech / Career Tech School. We suggest Independent Inventors get to know them and show them a copy of this document. They may be able to use it as a place to help inventors begin to develop the skills they need as well as help them with many other facets of drive development.

How to Keep the Project Balances in the Six Areas of Balance

Keep a running list of the "next steps" in each of the six areas and move between them instead of only focusing on one area. If more than one person is involved, assign monitoring some of the six areas to each person and have them report on them when discussing the overall status of the project.

Budget time and funds to each of the six categories. Progress in each area can be monitored in a "Microsoft Project" type Gantt Chart.

Presentations

Eventually the success of an Independent Inventor's drive will depend upon presentations: the presentation given to the banker and investors for money, the presentation given to potential licensees and the marketing presentation given to potential purchasers when (and if) the drive finally makes it to the marketplace.

This section focuses on the elements needed in a good presentation to interest a potential licensee.

1. One of more issued U.S. utility patents in "Marketing Patent" format (see the Intellectual Property section)
2. A better understanding of the potential licensee's business, major executives, culture and history than they have (know everything there is to know about them)
3. Be sure the presentation "hits" one or more of their major concerns at this time and how the drive can help solve their problems.
4. Field test data and high quality video of a fully functional prototype operating in a boat
5. High quality scale model
6. Good production cost estimates and a comparison to the production costs of their drives (if they build drives)
7. Detailed marketing analysis of the target market
8. Identify "what is in it for them"
9. Detailed list of competing products (and patents) and why this design is better than them
10. True list of your drive's shortcomings (problems), and areas yet to be proven.
11. A couple of potential marketing approaches for the potential licensee
12. Full copies of patents on the drive
13. An understanding of the material, purchased parts, labor, marketing, service, warranty, and overhead costs to build and support the drive.
14. An understanding of the capital and tooling costs to build the drive (and payback time)
15. A discussion of the captive transom problem (your drive will not go on boats built by drive builders unless you are licensing it to them (they will be using their own drives)
16. A discussion of potential new markets or applications the inventor's drive might make possible
17. Discuss how it is going to be powered (use conventional marinized engines, buy powerheads, build your own engine, etc)
18. Solid understanding of environmental requirements (emissions, coatings) and procedure, processes, costs, time involved in achieving them (if the drive involves a new powerhead).
19. Don't make ridiculous claims about the performance of the drive or its potential sales. Be able to back up every claim made.
20. Recognize the current industry "Grow Boating" tax on drives
21. Recognition of the market being more dynamic than it has ever been

Avoiding Scams

Avoid invention development scams. Many late night television commercial prey on Independent Inventors promising they will make them rich, but it usually goes the other way around.

The Inventor Resources section of the United States Patent & Trademark web site is one place to learn about this problem.

<http://www.uspto.gov/web/offices/com/iip/complaints.htm>

Conclusion

This paper attempt to show the great difficulties involved in reaching the marketplace with a new marine drive resembling an outboard or stern drive targeted at the mainstream market (40 to 300 HP). We hope a better understanding of the challenges ahead will prevent Independent Inventors from filing patents and spending money with invention scam companies to promote drives that have no opportunity of ever reaching the marketplace.

We also hope this paper helps Independent Inventors and small companies with drive concepts that might one day actually reach the market, accomplish that task much easier.

Good luck with your drive designs!

Feedback

Please send any feedback you may have on this paper to Gary Polson at: polsong@virtualpet.com

References

Several of our previous papers on marine drives, market research, and successfully marketing inventions will be of considerable help to Independent Inventors of marine drives. Most of them can be reached from our Research Papers and Tools Page.

<http://www.virtualpet.com/rtools.htm>

Among papers reachable from that page are:

Propeller Driven Recreational Marine Drives: Learning from the Past with an Eye to the Future

U.S. Commercialization of Innovative, Propeller Driven Recreational Marine Drive Designs

Marine Stern Drive Production Volumes and Market Shares: An Overview

Power Boat Industry Statistics

How to Learn About an Industry or a Specific Company

How to Conduct a Patent Search

Evaluating Inventions

How Learn About a Company by Examining its Products

Economical Prototypes

We are currently working (December 2005) on a paper focusing on market statistics for small outboards (30 HP and below) that may be of interest to marine drive inventors.

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