



The Australian Motorcycle Company: Born Global or Stillborn?

The volume of enthusiastic press coverage his company was receiving pleased Rod Hunwick, the general manager of the newly formed Australian Motorcycle Company (AMC). The Hunwick Hallam motorcycle had “*won rave reviews from the international motorcycle press and strong expressions of interest from potential distributors and customers*”¹. Alan Cathcart, a world renowned, independent journalist visited Australia twice to test ride both the cruiser and the race prototypes and gave strong endorsements of both machines. Detailed articles about the new bikes appeared in over twenty motorcycle magazines around the world and Motorcycle Online, the premier motorcycle “e-zine” (see exhibit 1 for some article extracts).

However, Hunwick had some pressing concerns. The location for the factory had yet to be decided, although some attractive proposals had been received from both the New South Wales and Victorian State governments. The first of thirty Hunwick Hallam Boss PowerCruisers was due to roll off the line in November 1998. No decision to go ahead could be made until suitable financing had been secured. Attempts to secure a local provider of venture capital for the start up phase had been fruitless. Of equally great importance to the success of the firm was the choice of which markets to target for export and the question of how to distribute its product in foreign markets.

This case was written by Marco Gabbiani, MBA, under the supervision of Professor Timothy Devinney as a basis for class discussion and not for the purpose of illustrating either the good or bad handling of a specific management situation.

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¹ *Business Review Weekly*, 7 July 1997, pg. 34.

The Australian Motorcycle Company

The founders

The Australian Motorcycle Company was formed in 1994 to develop, manufacture and sell a prestige Australian built motorcycle. Rod Hunwick joined forces with Paul Hallam to design a unique engine and motorcycle to be branded “Hunwick Hallam” (HH). To date, Hunwick has spent over A\$3 million of his own funds on product development.

Hunwick has four motorcycle dealerships and two car outlets in his Action Motor Group (AMG). Action retails Honda, Suzuki, Moto Guzzi, and Bimota motorcycles and Suzuki four wheeled vehicles. Hunwick has proven his expertise in selling motorcycles: The branch in Parramatta, a suburb west of Sydney, is the most successful Honda outlet in Australia, selling over 1,000 bikes a year. Hallam, an engineer, has designed engines and motorcycles for a variety of purposes and has won international renown for his work in developing superbike² racing engines. A team of eight people was involved in prototype development. After three years of development effort, prototypes for three different models have been developed (see exhibit 2 for HH product types and pictures).

Strategy

AMC’s aim is to capture a share a previously ignored market niche: high-end customers prepared to pay a large premium for a high quality, individually customised, handmade motorcycle. These riders desire unique and stylish machines that deliver high levels of reliability, resale value and performance. Most of the potential customers are offshore and, with simple modifications, the bike’s design can be tailored to any market. Limited production runs and a range of factory customising options are aimed at delivering a unique product to each customer. Gross margins of over 50% are expected from direct customer sales. Sales to distributors will run at margins of over 40%. The after tax profit margin is expected to be around 5%.

Hunwick’s understanding of the market is based on his extensive experience in selling expensive motorcycles in Australia. He believes that HH customers around the world share similar needs. AMC’s strategic emphasis is on the product’s design and performance rather than after sales service and promotion. The main promotion vehicle for the product is a high profile racing program.

The racing program will serve two important purposes. Firstly, racing raises the profile of the company and is a useful promotional tool. Secondly, race development is an effective way to evolve a reliable and robust design, as racing conditions are more demanding than those on the road. AMC expects its race development orientation to substitute effectively for a large advertising budget.

² Superbike racing is based on production motorcycles and has many local series as well as an international series that is in the FIM stable.

We don't think we will have to run huge international marketing campaigns, because our experience is that people already know the bike for its unique qualities [...] We believe that it can generate its own demand.³

AMC is keen to emphasise its differentiated product positioning. Bikes will be individually handmade to customer specifications. Rapid order turnaround of approximately one month is aimed at maintaining high levels of customer service. Customers will be invited to visit the factory to get a better idea of how they may wish to customise their machine. AMC plans to export directly to customers in markets where there is no distribution structure.

Recent Progress

Five prototypes have been built and the road bike is ready for production. The X1R race bike has entered a number of local races and won on a few occasions. Power output figures are very promising for competition at the international level. AMC is seeking a partner with a 30% share of equity and requires approximately A\$7 million dollars in external funds to start production. Negotiations for equity investment are progressing with an Asian venture capital fund.

Apart from the domestic market, AMC expects to concentrate its export efforts on Europe and Japan. Consultants who evaluated AMC's prospects were unwilling to sign off on the size of the market that HH motorcycles could capture. This problem arose because Hunwick's target segment has never been targeted before. Apart from racing motorcycles and a few limited edition special models (like Honda's NR750 which sold for over A\$80,000), no other manufacturer sells motorcycles in volume⁴ at the A\$35,000–A\$40,000 price level (see exhibit 3 for examples of Australian motorcycle prices).⁵ However, many purchasers of expensive motorcycles buy accessories to customise their motorcycles, resulting in gross purchase values of well over \$30,000.

The World Motorcycle Market

The heavyweight segment

The bulk of world production is in small commuter motorcycles. The market that AMC is targeting is the so-called "heavyweight" market for motorcycles with engine capacities in excess of 750cc.⁶ Exhibit 4 gives production figures for the major motorcycle producing countries. China, India and South East Asian countries only manufacture bikes up to 150cc. These machines are predominantly used for transport purposes.

The heavyweight market is concentrated in the Europe, Japan, North America and Australia/New Zealand. The Japanese "Big Four"—Honda, Kawasaki, Suzuki and Yamaha—dominate this part of the motorcycle industry. Since the late 1960's, they have accounted for more than half of the world's heavyweight motorcycle production. The non-Japanese, or

³ Rod Hunwick, *Business Review Weekly*, 7 July 1997, pg. 34.

⁴ Specialist builders like Harris, Over and Egli rarely produce more than 50 of each model.

⁵ Harley Davidson's most expensive model retails for just under A\$30,000 in Australia.

⁶ Some observers include 750cc bikes in the heavyweight segment.

'Western', producers focus on the larger bike market (represented by engine capacities of 125cc or more). Harley Davidson is the single largest manufacturer in the US. The European industry has been reduced to a few major players: BMW in Germany, Triumph in the UK, Cagiva/Ducati and Aprilia in Italy.

Customer preferences

In most developed countries motorcycles sales have been in decline since the 1970's.⁷ The role of the motorcycle has changed from a means of cheap transportation to that of a lifestyle accessory and changing fashions have led to the rising and declining popularity of motorcycles. During the 1970's motorcycles suffered from negative social images and a very poor safety record. The 1990's have revealed a small recovery in the motorcycle industry and it is becoming fashionable to be on two wheels again. Many celebrities and high profile business people now openly advertise their affection for motorcycles. These customers place a premium on the exclusivity of their mount with little concern for price.

Australia and New Zealand

AMC's home market is small by world standards in terms of total volume. However, the high proportion of large motorcycles purchased makes Australia an attractive top-end market. The total market has been growing since 1993 and the fastest growth has been in the over 750cc segment. This can be seen in the dramatic increase in the average price paid for an imported motorcycle in exhibit 6.

Harley Davidson has the highest share of the over 750cc market (see exhibit 6) and this share has consistently increased since they entered the market. Harley Davidson's success reflects the increasing popularity of cruisers as well as a validation of their own efforts. In light of the lessons learned from Harley Davidson's success in Australia, AMC plans to sell its product directly from a showroom/factory facility. Along with capitalising on Hunwick's experience selling motorcycles, direct selling facilitates the customer's selection of custom options.

Europe

Europe is the largest heavyweight market in the world if one includes the 750 class machines that are popular in Europe (those that have capacities just under 750 cc). The four largest markets are Germany, France, Britain and Italy. Britain has the highest concentration of large motorcycles but a relatively low concentration of cruisers compared to its European peers. Although, the cruiser segment is growing in all European countries it is still small compared to the US cruiser segment. This is attributable, at least in part, to European buyers' preference for performance—acceleration, braking and cornering—over ostentatious styling. All of this is reflected in Harley Davidson's weaker competitive position in Europe. Exhibit 7 presents selected data on the European market.

The integration of the European Union (EU) market has pluses and minuses for the industry. Certification requirements are common across the EU and there is also no duty payable when transferring goods between member countries. However, noise and emissions controls for

⁷ See exhibit 5 for data on the history of motorcycle sales in Australia and the UK. This pattern is representative of that seen in other Western markets as well.

motorcycles are becoming stricter and some politicians have been active in attempting to reduce the power output of high performance motorcycles. According to IMMA, “*it is only a matter of time before the 100 hp limit is imposed on Europe by the European Parliament*”.⁸

Japan

For a country with a large population of motorcycles, the over 750cc motorcycle segment is relatively small in Japan. Japan has a registered motorcycle population 83 per cent of the size of the US motorcycle population, but a heavyweight market that is only 20 per cent of the size of the US segment.⁹ A combination of numerous capacity classes for registration purposes and higher fees on large motorbikes have resulted in a heavyweight segment that is proportionally smaller than other major markets. However, cruisers are very popular, as can be seen from Harley Davidson’s share of the heavyweight segment (see exhibit 8).

North America

The home of Harley Davidson is the largest heavyweight market and the largest cruiser market in the world. American motorcycle buyers are very loyal to their brands and their country. Anti-Japanese motorcycle attitudes are apparent in many parts of the US motorcycle fraternity. Harley Davidson has a very dominant position in the heavy cruiser market with a 60 per cent share of a still growing segment and has had the largest market share since 1987 (see exhibit 9). Lower speed limits and poorly enforced helmet regulations have led to the popularity of “wind in the hair” motorcycling. Motorcycle performance is perceived to be less important than styling, individuality and brand by a majority of buyers.

The highly litigious nature of the American market increases the risk of selling recently developed products. Audi’s travails were a case in point. Audi led the field when it introduced drive-by-wire technology to the US but damaging litigation regarding this technology was very costly. Litigation is a particular concern for AMC since their technology is so new. The ability to alter motorcycle geometry and engine characteristics radically with little effort creates the danger that customers may customise their bikes in an potentially unsafe manner.

Export Distribution Channels

Motorcycle distribution follows a pattern similar to that seen in the car industry. Dealerships are usually independent of the manufacturers but are frequently franchised or part of a chain store system. Most dealers sell more than one brand of motorcycle and it is not uncommon to see larger dealers selling two or more of the Big Four brands and a handful of European models. Harley Davidson is an exception to this rule with 75 per cent of its North American and 50 per cent of its European dealers being exclusive Harley Davidson operations. Harley Davidson is beginning to vertically integrate by taking over some of Harley Davidson franchises and it already owns the importers in many of its larger export markets. In most countries there is a single importer of each brand and independent and subsidiary importers appear to be equally common.¹⁰

⁸ International Motorcycle Manufacturers Association, Geneva, phone interview.

⁹ Source US Census bureau, *Japan Statistical Yearbook 1997* and *Harley Davidson 1996 Annual Report*.

¹⁰ Volume exports of motorcycles are shipped by sea. Shipping costs per motorcycle are approximately A\$250.

Dealer margins do not appear to vary to a great degree given the consistency of motorcycle pricing around the world after freight and taxes are taken into account. In the UK, the typical dealer margin of 15%¹¹ is often negotiated to a figure well below this level. The revenue gained from accessory sales, financing, and after-sales service can help to offset this margin erosion. The margins on high-end motorcycles tend to be somewhat higher than the average to compensate for lower sales volumes and higher inventory costs. AMC estimates that its retail margin is similar to that obtained by brands like Harley Davidson and Bimota. The importer or distributor in each country usually controls after-sales service training, marketing planning, and advertising.

Motorcycle Product Segmentation

Market segmentation in the motorcycle market is done by engine capacity and/or by the type of motorcycle. Different types of motorcycles are designed for different road or off road conditions. The most important types of larger and expensive (i.e., greater than 125cc) machines are the tourers, sportbikes and cruisers. Road bikes are matched by racing machines in their variety of configurations and styles.

The large motorcycle market is completely dominated by four-stroke engine machinery. The benefits of the four-stroke engine are better fuel consumption, less noise and smoke and better reliability and ease of use. A small fraction of performance sportbikes and a large proportion of scooters and mopeds still use two-stroke engines. Two-stroke engines give the best power-to-weight delivery (and often power-to-price ratio) at a cost of poor fuel consumption, high exhaust emissions, smoke and noise, and a narrower spread of power. The majority of cruisers use a V twin engine layout. V twin engines are blessed with more low speed torque, a distinctive exhaust note (that is a favourite of many bikers) and narrower-across-the-frame dimensions than other engine layouts. The result is a power delivery that is more predictable and relaxed. Previously the sole preserve of Harley Davidson and Ducati, an increasing number of new models are adopting the twin V format.

Supersport

Sportbikes, being derived from racing machines, emphasise handling and speed. However, there is considerable blurring between the definition of a sportbike and a tourer. In some markets Honda's VFR750 is called a tourer, in others its is called a sportbike. The most narrowly focused sportbikes cannot be ridden over long distances comfortably. This results from the need to have low handlebars (to concentrate the rider's weight over the front wheel) and high foot-pegs (to provide high levels of cornering clearance for spectacular lean angles of 30 degrees or less). High-end sportbikes use the most expensive brakes, wheels and suspension components and a great deal of effort and expense goes into making the bikes small and light and the engines powerful. High performance motorcycle engines demonstrate higher specific output than any road going car engines. The best-known sportbike producers are the Big Four and Ducati. Sportbike sales are linked to the performance of the manufacturer in racing competition. Ducati and Honda's success on racetracks has led to impressive sales figures for their sportbikes.

¹¹ Source: phone interview with Motorcycle Industry Association, Coventry UK.

Tourers

Harley Davidson pioneered this category with the Electra Glide model. Large windscreens, comfortable seats, luggage panniers and other amenities for long distance travel are the hallmark of a tourer. The engine is designed for “roll-on” response rather than top end power to reduce reliance on gear down-changes for brisk acceleration. Although some other manufacturers, such as Honda and Moto Guzzi, have followed Harley Davidson into this segment, most manufacturers produce only sport tourers. The lack of emphasis on performance and focus on comfort results in a large and heavy machine carrying lightly stressed, large capacity engines.

Sport tourers

Sport tourers are high-speed versions of tourers and attempt to satisfy a dual role. BMW is regarded as the leading brand in this segment. Sport tourers are designed for travelling with luggage and a passenger on board. They are large and heavy with very powerful motors for high speed cruising. Cornering and braking performance tends to be adequate and the bodywork is designed for high-speed aerodynamic performance and rider protection. Some sports tourers are the fastest of all production bikes. Honda’s Blackbird and Kawasaki’s ZZR-1100 are both capable of speeds over 280 km/h in standard trim. Features like ABS,¹² heated hand grips, centre stands, luggage racks and panniers are common on high-end machines. Rider comfort and pillion mandates the use of plush suspension systems, higher un-sprung mass and larger distances from seat to handlebars to foot-pegs. This results in a large and heavy design.

Cruiser

The cruiser is the most curious and fastest growing motorcycle segment. *“In 1989, the cruiser market accounted for 19% of worldwide sales. This figure is now 33% and is predicted to grow even further.”*¹³

Profit margins on cruisers are high.¹⁴ Harley Davidson defined the cruiser with its retro styled laid back designs. In order to cash in on this lucrative, large and growing segment, manufacturers around the world are releasing an increasing variety of models. The trend is akin to that of four-wheel drive vehicles where purchases are driven by image rather than function.

The Japanese manufacturers began making Harley look-alikes in the mid-1980’s. The Europeans have begun to make cruisers in the last few years. Triumph released its Thunderbird, in 1995 (its first model for the US market) and BMW released its R1200 in 1997. The typical cruiser is not purchased for performance reasons. Unseasoned cruiser riders complain of poor performance, weak braking and poor cornering clearance while suffering from high levels of vibration, noisy exhausts and buffeting from the wind. Their individualised retro styling, distinctive exhaust note attracts aficionados of such bikes, acceleration off the

¹² Anti-lock brakes.

¹³ Dr Michael Ganal, General Manager, BMW Motorcycle division, quoted in *AMCN*, 13 June 1997, pg. 32.

¹⁴ This can be seen in exhibit 11 by comparing Harley Davidson’s high profit relative to sales when compared to BMW and Yamaha.

mark and the laid back riding position they offer. Harley's association with "biker" gangs and movies like *Easy Rider* have given the cruiser a bad boy image despite its laid back performance and riding style. This has increased its appeal to retired rebels who still like to flaunt their individuality.

Most cruiser buyers haven't owned or ridden a motorcycle for many years. They are 35–45 years old, white collar, they've got money, they've got a licence. Their skills are a bit rusty but they want a bike.¹⁵

The emphasis of cruiser design is on styling and individual customisation. It took the Japanese manufacturers a considerable amount of time to realise that their cruisers needed to vibrate more and be noisier in order to sell. Harley Davidson is now attempting to patent the "potato-potato" exhaust note in response to the increasingly accurate copies of its own designs.

Image is a crucial factor in the cruiser market. Price, performance and quality often take second place to the power of the brand.

The Japanese and Germans build great bikes, but if it doesn't have a Harley badge it doesn't matter [...] their [Harley Davidson] biggest asset is their heritage—that's something the other companies can't buy. Resistance to non-Harley's is weakening—but it is still there to some extent.¹⁶

The US cruiser market is still very parochial. The latest Japanese models are designed and manufactured in the USA and clearly badged to advertise this fact.

Accessory purchases are a lucrative source of revenue. Almost 20 per cent of Harley Davidson's revenue comes from parts and accessories and general merchandise (see exhibit 11). In order to increase the individuality of their motorcycles owners purchase accessories to distinguish their machine even further. Frequently the aim is to have a bike that looks like no other.

A cruiser is a lifestyle thing, so you have to dress up your bike and get the right gear for the rider. Most cruiser buyers spend another \$3000 to \$4000 on accessories.¹⁷

Standard

Substantial proportions of motorcycles are of a conventional design that has remained unchanged for many years. These bikes use simpler and cheaper components and are aimed at more utilitarian roles and basic transport needs. Naked bikes are modern copies of older styles that had no fairings or windscreens and emphasise visibility of the engine.

On/Off Road

Another popular design style is based on/off road motorcycles. These road bikes generally use single or twin cylinder engines and long travel suspensions. They mirror their off road cousins

¹⁵ Guy Allen, former *AMCN* editor, quoted in the *Sunday Herald*, 27 July 1997, pg. 52.

¹⁶ Guy Allen, *ibid.*

¹⁷ Guy Allen, *ibid.*

but add lights, instruments and road tyres. This style has become very popular in France: customised “super motards” are produced by a number of specialists

Other categories

Racing motorcycles are designed for a wide variety of conditions and road surfaces. AMC’s X1R is aimed at the superbike racing class that is based on production road machines. Homologation rules require an annual build volume of 500 units. Ducati and the Big Four sell customer versions of their superbikes for from A\$90,000 to three times this figure.

Scooters and mopeds are a large volume segment. In general, their design is utilitarian, although recently these models have become fashionable again. Engine capacities never exceed 250cc with the most common models having 80cc to 150cc engines.

Off road motorcycles are predominantly used for racing competitions like enduro and moto cross. Small proportions are designed for military and agricultural use.

Custom builders make small volumes of special models and also make bikes to order. Some builders have their own brand of motorcycle that are usually based on existing designs. However, most builders simply modify existing bikes. Cruiser owners are big spenders on non-factory custom modifications.

Competitors

Exhibit 10 lists the major manufacturers and exhibit 11 provides selected financial information on some of the major players. AMC’s product goal is a highly individualised and premium quality product. Through its combination of product attributes, it aims to avoid direct competition with any existing product. The companies described below compete in the high price segment and are thought to pose the biggest threat to AMC’s success.

Harley Davidson and Buell

Arguably one of the most spectacular marketing success stories of the 1990’s, Harley Davidson continues to increase its already large market share. Harley Davidson’s success has forced other manufacturers to build the types of bikes that Harley invented. HD’s typical customer is male, aged in their mid-forties, has an income of US\$68,000, purchases the motorcycle for recreational purposes and is an experienced motorcycle rider.¹⁸ The brand has intense customer loyalty. For example, there is little evidence of any other brand name (of any product) being tattooed onto the bodies of customers with such regularity. The Harley Owners Group (HOG) has a membership of over 300,000.

Company research has consistently shown a repurchase intent of 92 per cent since 1988.¹⁹

¹⁸ *Harley Davidson 1996 Annual Report*, pg. 4.

¹⁹ *Ibid.*, pg. 4.

Harley's strategy has been to maintain supply at levels below demand. Long waiting lists and high resale prices have been enduring facts of life for customers. This may change now that Harley is expanding capacity rapidly and cruiser buyers are starting to switch to Harley copies. HD is planning to add capacity to reach production levels of 145,000 units in 1998, ramping up to 200,000 units by 2003. Models are cosmetically updated every year to maintain high levels of unique identity.

Harley has introduced advanced operations management techniques to keep costs down and improve quality. It sells 23 different models with three engine sizes. US prices range from \$5,200 to \$18,500 and are typically 50 per cent higher than those for comparable competitors' models. Sales are shifting to the higher priced and more profitable models. Accessories are an important part of the business that further feed customer desires to customise their machines. HD is a highly focused company. Its sole line of business is motorcycles, accessories, and HD merchandise clothing and personal effects.

The Harley trademark is its air-cooled 45-degree V-twin engine. Like the rest of the bike, the engine is robust, reliable and heavy. There is little use of advanced technology except for the recent introduction of fuel injection to meet forthcoming emissions regulations. Harley now owns 49% of Buell. Buell make HD-engined sportbikes. 1996 sales were over 2000 units. Prices are equivalent to mid-range Harley's.

BMW

BMW has a conservative image. Its motorcycles are oriented to a touring role and emphasise practicality, comfort, and reliability over outright performance. BMW also has a long heritage and is famous for its flat-twin engine. BMW is renowned for its high quality and has a good track record for introducing innovative technology. Recent model introductions have signaled a shift in BMW's image. The new K1200RS is the first motorcycle to exceed BMW's self-imposed 100 hp limit and does so by a substantial 30 hp margin. BMW's styling has become more adventurous also. The recently released R1200C is BMW's first cruiser and is seen as a risky and bold step for the company. The BMW motorcycle division is a small part of the BMW group better known for its automobile products. BMW pricing is slightly below that of HD but more than the Japanese equivalents. Resale values are above average for the market.

Ducati

Ducati has built its reputation on sports and racing machines. Top of the range Ducati's, like the 916SPS, command prices above those for HD. Customers often purchase performance enhancing accessories after the purchase of an already expensive high performance machine. Ducati's image is based on desmodromic valve actuation, 90-degree V-twin engines, and steel tube space frame chassis. Ducati has just been bought by a Texan investment bank and is slated for a listing on the NYSE. Prices are generally well in excess of equivalent Japanese machines and resale values are high.

Bimota

Bimota is a very small and relatively young producer that specialises in sportbikes. Bimota is one of the most innovative stylers and designers of bikes. All but one of its models use existing Japanese or Italian engines. Resale values are not very high compared to their high retail

prices. Sales volumes increased dramatically when prices were reduced. The best selling model, the Suzuki based SB-6, has sold several thousand units at a price of around A\$35,000 whereas previous models sold only a few hundred units at prices A\$10,000 higher.

Polaris

Polaris is the first American based challenger to HD to emerge with a finished product. A few other start-ups that revived old American brand names like Indian and Excelsior-Henderson have floundered. Polaris released a large capacity V-twin cruiser that closely mimics HD's design approach. Pricing is expected to be below that of HD. The parent company began with snowmobile production and has diversified into personal watercraft (better known as Jet skis).

Triumph

Triumph is a very old brand with a strong heritage that fell on hard times in the last several decades. However, the British marquee has been revived and is now beginning to flex its muscle with the release of its second generation of motorcycles. Most of Triumph's product range is sports or touring oriented. The Thunderbird, released in 1995 is a retro styled "naked" bike designed to appeal to the American market. It is not a cruiser in the strict sense but shares some cruiser characteristics like retro styling, a lazier power delivery, a more relaxed seating position and a famous model name from the 1960's. Triumph's prices have generally been higher than the Japanese equivalents and residual values have been competitive.

The Japanese Big Four

The undisputed market leadership of the Japanese is eroding. Harley Davidson has made the greatest inroads into the Japanese share of large motorcycles. The Japanese produce the broadest product ranges and price at the bottom of the range in most product categories. The products are recognised as offering the best value for money and models are updated frequently. Their styling is faddish and, although the Japanese brands are criticised for lacking character and individuality, their performance and handling is the best in the industry. Their reliability and quality is quite variable but is generally considered to be the best in its class. The resale values of big-four bikes are the lowest in the industry except for a few models.

Japanese responses to Harley Davidson's strategy have not been very successful until recently. The latest designs are almost indistinguishable from the real thing except for the brand name. All the Big Four are diversified producers. Only Yamaha generates the bulk of its revenue from motorcycles.

Specialist Builders

High prices are paid for small volume specialist bikes. The limited resources of the smaller firms limit development that often results in flawed designs that may perform well but do not have the same all round quality of larger manufacturers' products. These products are attractive because of their highly unique nature however their resale value tends to be very low.

Hunwick Hallam Motorcycle Product Range

The motorcycles

The company initially aims to produce three different motorcycles: A large and medium size cruiser and a supersports machine that will be homologated for racing in the World Superbike series. The flagship Boss PowerCruiser is expected to provide the bulk of sales and will be the first model ready for sale. All models are aimed at the high end of the motorcycle market. Hand assembly, parts of the highest quality, advanced design and individual customising of each bike at the factory prior to delivery are aimed at delivering value to customers who are paying the premium price these machines command.

Product features

All HH motorcycles will share the same basic power plant. The V-twin engine can be built in capacities ranging from 1000cc to 2000cc. Because the engine is the main structural member there is no frame. The front and rear end are literally bolted on to the engine. This is a key design feature that allows the geometry of each model to be customised very easily by simply changing the (relatively inexpensive) parts that connect the engine to the suspension, handlebars and seat units. Thus designs as dissimilar as sportbikes and cruisers can be based on the same engine and have different capacities. A further benefit of using a high performance engine is that the HH cruisers will have class leading power and torque. Hunwick believes that many potential cruiser owners are not satisfied by the poor performance of cruisers on the market. The HH engine and innovative “chassis” will deliver more power with less weight by a substantial margin over current cruiser designs. High quality suspension, brakes and tyres will improve handling quality to levels well in excess of cruisers sold today.

The engine bristles with advanced technology and high quality features: Electronic fuel injection, torsional vibration dampers, rolling element bearings (instead of cheaper plain bearings), an advanced combustion design and Formula 1 derived pneumatic valve actuation: a first on any motorcycle. The electronic fuel system allows engines to be tailored to different export markets requirements and individual customer tastes. Modifications to the engines’ characteristics will be able to be executed by internet based links to AMC. Engine tuning and fault finding can then be performed from any location. This remote tuning technology has already been proven by Lamborghini and is also to be used by Bimota.

AMC has been painstaking in its attention to details. The HH design is aimed at ease of assembly and maintenance. As a consequence, AMC anticipates a work-force requirement of only 48 staff once production ramps up to 1200 units. Forethought has also been given to addressing servicing and assembly errors. For example, if the timing belt is incorrectly fitted no engine damage will occur. Most high performance engines will be seriously damaged if such an error occurs. According to Motorcycle Online *“The Hunwick Hallam design is, in a word—Bulletproof.”*

The other key element of the HH family is that the appearance of the bikes can be easily altered. From the outset, the designers made sure that fairing panels, fuel tanks, headlights and fenders of differing shapes could be bolted onto the same attachment points. This is essential to realising individual customisation at a lower cost.

Parts Sourcing

Unlike most motorcycle start ups AMC has decided to develop and manufacture most of the parts that make up its motorcycles. In-house development of components, in particular the engine, is very expensive. According to Hallam “[we] *set out to build the worlds best four-stroke motorcycle powerplant.*”

The engine, chassis and electronic fuel injection control system are all to be made in house. The wheels, bodywork, exhaust system and ancillary parts like handlebars, foot pegs and gear linkages are to be made in Australia to Hallam’s design specifications. The gearbox, brakes, tyres, instrumentation and suspension are top of the range components sourced from the worlds best suppliers (like Suzuki, Brembo, and WP). AMC is aiming to build bikes with a sufficiently high local content to win export credits which can be used to offset import duties on certain components.

The Way Forward?

AMC’s difficulties in raising finance are largely based on the lack of certainty about the sales potential of HH motorcycles and a lack of understanding of the motorcycle industry. The industry is small and documentation is scarce. Hunwick is determined to press ahead with production, as he believes strongly in his product. The choices of export markets and distribution methods are crucial to the success of the venture. These decisions are required to add certainty to the marketing plan. The domestic market is a certain target but too small to sustain the venture alone. The choice of which foreign markets to enter first is a trade off: Take on Harley loyalists in the litigious and parochial but massive US cruiser market or tackle the diversified, more performance oriented but smaller European cruiser market. The choice of distribution method, particularly in Europe is also difficult. The options include direct sales to existing dealers, selling to different importers, selling to a centralised importer, setting up a European subsidiary to supply all of Europe or enter joint ventures with a handful of large dealers in major cities.

Exhibit 1a: Australian Motorcycle Company High Performance Engineering in Every Sense, By Ken Edwards

With a mixture of high-tech lilt and super speedway “bark,” Australia’s first locally designed and built high performance motorcycle has thundered into life. The effort of a small team headed by leading Australian motorcycle and automotive retailer Rod Hunwick and world recognised race engineer Paul Hallam, the fuel-injected DOHC 90-degree V-twin has been under development for almost three years. Designed by Hallam, the powerplant will initially be constructed in three distinct versions. These in turn will power a three-bike model range built in Australia and marketed under the Hunwick Hallam banner.

It is planned that the first motorcycle to wear their distinctive HH logo will be the 1350cc BOSS V-PowerCruiser. A 1000cc X1R Sportbike that will feature Formula One-style pneumatic valve actuation and be eligible for the World Superbike Championship will follow this. The final model in the line-up will be an unfaired 1100cc Rage streetrod. Both PowerCruiser and Superbike versions of the engine have undergone extensive dyno testing and are registering competitive levels of horsepower in their intended roles.

Many people have likened the Hunwick Hallam to New Zealand’s Britten, however the two Australians responsible for this machine had higher aims than to build just one, or even a handful of bikes. “We have kept the development and design of the engines secret,” said project pioneer Rod Hunwick, “However, the whole Hunwick Hallam project has reached the stage that we can make public some of our efforts.”

These guys are intent on taking on the world. World Superbikes actually. To do this, a volume build is required. The enterprising pair have formed a manufacturing arm—the Australian Motorcycle Company—with the intent of building 500 Hunwick Hallam motorcycles per year to be exported around the world. With large-capacity and prestige motorcycle sales experiencing a resurgence worldwide, the export potential of the new Hunwick Hallam venture is considerable. “We are currently negotiating regarding the future of our enterprise, including the location and scope of the manufacturing facilities,” said Hunwick

“What Paul (Hallam) has designed and we have produced is a world class powerplant—in its various versions it is the first step to producing a range of motorcycles that we believe will take on the world’s best,” added Hunwick. Details of the innovative eight-valve 1350cc PowerCruiser powerplant include a 102.5 x 82mm bore and stroke, sequential electronic fuel-injection and an ultra-compact cylinder-head design featuring Hallam’s own Axial Targeted Combustion process.

“We set out to design the world’s best four-stroke motorcycle powerplant,” designer and engineer Hallam said. “Taking the best from all facets of combustion engineering, the engines are both innovative and practical. The elemental design has the potential to provide quite astonishing figures—both versions are already producing more horsepower than their potential competitors,” Hallam revealed.

Production documentation and tooling is also well advanced. Already the BOSS V-PowerCruiser is a running concern in prototype form, with final testing and compliance with Australian Design Rules a priority. The 1350cc 90-degree V-twin BOSS cruiser is set to offer significant performance increases for the powercruiser market. Handling and styling won’t disappoint either.

However, the bike everybody wanted to see was the X1R Superbike. Former Australian Superbike Champion Mal Campbell has assumed the role of race/test rider for Hunwick Hallam, and completed the first laps ever ridden on the bike recently between races at Phillip Island during the 1997 World Superbike event there. The World Superbike Championship-eligible powerplant that is (literally) the backbone of this motorcycle, will offer features previously found only in Formula One car racing.

“While the Australian market is important, we believe that most of our production will be for export,” stated Hunwick “The demand for high quality, innovative and exciting motorcycles is increasing worldwide. This is a very important project in a number of ways. Hunwick Hallam will showcase both the design talent of Paul and our team, and Australia’s manufacturing industry as a whole.” At this stage no firm rollout date has been set for the first of the Hunwick Hallam models, however Hunwick said design and construction is well advanced. “Our Sydney based team is well down the road to completing our initial prototype program,” Hunwick revealed. “We’re in the business of producing motorcycles, not design exercises. No embargo.”

Exhibit 1b: Hunwick Hallam X1R Superbike: The First Ride, By Ken Edwards

Hunwick Hallam's X1R Superbike rolled out into the public gaze for its first time during round one of the 1997 World Superbike Championship at Phillip Island. A brave move on the part of the Australian Motorcycle Company, as the bike had not been tested previously. Apart from running the engine up on a dyno, the X1R had never turned a wheel before.

The bike was rolled out of the truck much to the awe of international Superbike teams and the Australian public. A jet-black carbon fibre-covered beauty that looked like no other. This wasn't any concept bike drawn up by under-worked Japanese motorcycle designers. This was the real thing. Sex on wheels.

Bike designer Paul Hallam had the honours of rolling the bike up to pit lane. Clearly it was the moment he had waited for. After three years working in secret, at last the world would see his creation. Would the bike start? Would the bike run? What if...? A million questions going through the heads of all that watched. Paul Hallam was quietly confident. The bike is bump started into action. The sound is a beautiful thump that only a V-twin can offer.

Hallam handed the bike over to the highly experienced racer and development rider Malcolm Campbell, the only man to ever to win a race on Honda's notorious NR750. Taking off from pit lane, Superbike teams were all outside their garages watching history take place. Campbell and the X1R disappear over the hill on the main straight to the delight of the patriotic crowd.

Paul Hallam was asked what he felt the highest pinnacle was so far in the development of the new racing machine. "Here and now," was the reply. As the bike came down the main straight it seemed that all the garages were empty. Hallam's creation was on its first flying lap of any racetrack in the world.

On completion of the second lap Campbell pulled into the pits as instructed. An eager Hallam awaited the news. "Power is great, needs some adjustment on the rear suspension," comments the rider.

The Hunwick Hallam X1R entered its first competitive meeting soon after this debut at round three of the Australian Superbike Series at Winton, Victoria. However, Campbell crashed out of the race in a first corner incident with another rider. The X1R had qualified ninth in wet conditions.

For the remainder of this year, the X1R will be competing in a special "prototype" class for no prize money or points in the Australian Superbike Series. The bike must comply with all Superbike Rules as per Motorcycling Australia's General Competition Rules (GCR's), except for volume sales. GCR's are identical to FIM rules for World Superbike, where the Hunwick Hallam team hopes to compete by next season.

Hunwick Hallam Debuts Its BOSS PowerCruiser

Australian Superbike manufacturer Hunwick Hallam has announced details of its stunning BOSS PowerCruiser prototype. The pioneering Australian marquee's debut machine is set to take street cruisers to a new plane—in terms of styling and design as well as performance.

The first of three debut models to wear the Hunwick Hallam badge, the BOSS PowerCruiser is propelled by a 1350cc version of Hunwick Hallam's own V-Power, fuel injected, eight valve, DOHC, 90-degree V-twin. In its PowerCruiser guise, the ultra-modern, short-stroke, Axial Targeted Combustion, air/liquid-cooled powerplant is claimed to produce in excess of 100 horsepower—despite a very mild state of tune.

Already, racing versions of the same power plant are producing over 160 hp per litre. Designed to take the street cruiser concept into the next century, the Hunwick Hallam BOSS PowerCruiser has been designed from HH's first principles concept. That is, while some motorcycles are designed in isolation as a powerplant and chassis, HH has treated the motorcycle as one component. As such, the HH design sees its engine act as the major chassis component, eliminating the need for a conventional frame. The BOSS PowerCruiser's cast-alloy steering head, rear sub-assembly and rear swingarm bolt directly to the central engine-transmission unit. So too

does its rear suspension componentry—Hunwick Hallam’s own rising rate asymmetric RamRoc monoshock system.

Hunwick Hallam’s engine/chassis design offers weight reduction and packaging benefits as well as facilitating production savings and easing routine maintenance. Visually however, the benefit of this approach is clear. The visual aspect of the Hunwick Hallam design is that the PowerCruiser is almost elemental in its appearance. Wheels, engine and controls—nothing ancillary.

In this respect, the BOSS PowerCruiser is a hint of things to come. It certainly breaks the ‘in vogue’ cruiser mould. Like the prototype, the production BOSS PowerCruiser will use top level componentry: Fully adjustable Dutch-made WP suspension units, and braking via Brembo componentry. Road and track testing of the PowerCruiser have already indicated good handling characteristics.

Indeed, could the HH PowerCruiser deliver handling characteristics more akin to a conventional sportbike? This ability, while not detracting from the traditional attraction of cruisers, has the added bonus of appealing to riders who have been frustrated by the poor dynamic performance of the current crop of cruisers. Hunwick Hallam claims the BOSS PowerCruiser promises 50 percent more power than its opposition, while boasting a 50 percent weight advantage in the cruiser arena.

At this stage it is anticipated that the BOSS PowerCruiser will commence production in 1998. Currently, the company is negotiating with venture capital partners and is in discussions with State Government bodies regarding the establishment of its manufacturing facility. Since the venture was made public with release of details of the new powerplant in January, interest at both business and end-user levels has been promising.

Source: Motorcycle Online at <http://www.motorcycle.com/>. Article at <http://www.motorcycle.com/mo/mcken/hunwick.html>.

Exhibit 2a: Hunwick Hallam 1998/99-product range

Model	Style	Engine Capacity	Share of sales (est.)
Boss PowerCruiser	Cruiser	1350 cc	70%
Rage	Cruiser	1100 cc	20%
X1-R	Supersport	1000 cc	10%

Exhibit 2b: Boss PowerCruiser



Exhibit 2c: Hunwick Hallam Rage

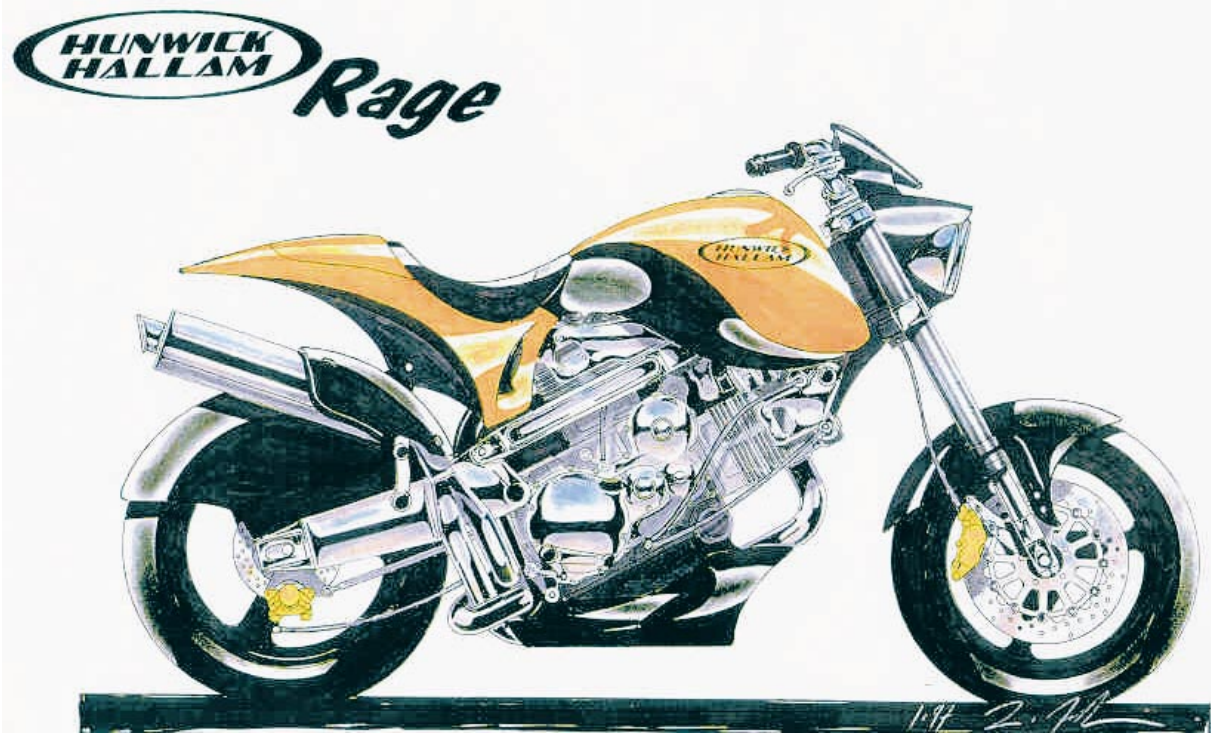


Exhibit 2d: Hunwick Hallam X1R



Exhibit 3: Australian Price Guide—Selected Motorcycles (1997)

Manufacturer / Model	Type	Actual CCs	Weight (Kgs–dry)	Price (A\$)
Bimota				
SB6	Supersport	1074	190	\$35,700
DB3 Mantra	Supersport	904	172	\$25,990
BMW				
K1100LTSE	Sport/tourer	1092	290	\$24,900
R1100RT	Sport/tourer	1085	282	\$23,500
R1100GS	Sport/tourer	1085	243	\$18,500
Ducati				
916SPS	Supersport	995	195	\$35,995
M900 Monster	Standard	904	184	\$16,995
Harley Davidson				
FLHTCUI Electra Glide Ultra Classic	Tourer	1340	347	\$29,250
FLSTF Fat Boy Two Tone	Cruiser	1340	284	\$24,250
XL1200 Sportster Sport	Cruiser	1200	226	\$14,995
Honda				
GL1500SEV Gold Wing	Tourer	1520	370	\$29,990
GL1500C2V Valkyrie Cruiser	Cruiser	1520	309	\$19,990
CBR1100XV Blackbird	Sport/tourer	1137	227	\$16,500
VT1100C2V Ace	Cruiser	1099	260	\$14,490
CBR900RRV	Supersport	918	183	\$15,900
Kawasaki				
Vulcan 1500 Classic	Cruiser	1470	292	\$16,390
ZZ-R1100	Sport/tourer	1052	233	\$16,490
ZX9-R	Supersport	899	215	\$15,490
Suzuki				
VS1400GLPV	Cruiser	1360	243	\$12,599
GSX-R750V	Supersport	749	179	\$14,999
Triumph				
Trophy 1200	Sport/tourer	1200	235	\$18,950
T595 Daytona	Supersport	955	198	\$18,990
Thunderbird	Cruiser	900	220	\$16,250
Yamaha				
XVZ1300ATJ Royal Star Tour Classic	Cruiser	~1270	~310	\$19,990
XV1100SH Virago	Cruiser	1063	221	\$11,999
YZF1000RK	Supersport	993	198	\$15,999

Source: Australian Motorcycle Trader, 12 September 1997

Note: The highest priced motorcycle and the largest cc bikes are listed when possible.

Exhibit 4a: World motorcycle production (selected countries)

Year	1995	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983
Japan	1,213,000	3,023,154	3,196,535	3,028,616	2,806,895	2,794,362	2,945,618	2,630,608	3,396,643	4,536,347	4,026,307	4,807,379
France	<i>325,904</i>	<i>327,731</i>	329,558	324,143	333,212	330,958	311,462	279,978	291,218	448,369	449,317	518,478
Italy	<i>477,550</i>	<i>527,850</i>	578,150	628,450	909,899	882,492	899,513	700,046	839,828	808,250	716,675	861,050
Germany	<i>89,333</i>	<i>81,059</i>	72,785	85,171	56,237	49,446	50,030	60,830	65,779	85,840	120,023	139,592
UK	<i>5,950</i>	<i>4,675</i>										
			3,400	2,678	850	900	640	800	350	2,000	2,300	2,300
Netherlands	<i>21,250</i>	<i>22,557</i>	23,863	25,678	26,476	21,700	18,500	28,900	12,600			
										7,400	6,200	8,000
Spain	<i>285,842</i>	<i>299,181</i>	312,519	321,390	384,565	335,922	328,056	255,431	182,621	173,473	177,156	179,174
Austria		<i>3,872</i>		14,456	20,904	16,352	23,049	55,737	98,691	160,799	145,949	134,119
			7,248									
Yugoslavia						66,480	68,563	87,092	78,978	76,818	86,346	74,472
USA	<i>91,630</i>	<i>84,291</i>	76,951	66,210	62,272	120,000	110,000	125,000	105,000	130,000	155,000	100,000
India	<i>1,257,896</i>	<i>1,367,379</i>	1,476,861	1,601,333	1,875,522	1,750,406	1,547,966	1,401,819	1,359,668	1,125,606	851,354	759,183
Total	<i>3,768,851</i>	<i>5,741,747</i>	6,077,870	6,098,125	6,476,832	6,369,018	6,303,397	5,626,241	6,431,376	7,554,902	6,736,627	7,583,747

Source: Automobile associations in each country and *Guide to the Motor Industry of Japan*, Japan Motor Industry Federation, INC (JMIF)

Note: Italicized numbers for 1993 and 1995 are estimates.

Exhibit 4b: World motorcycle production estimates for 1996

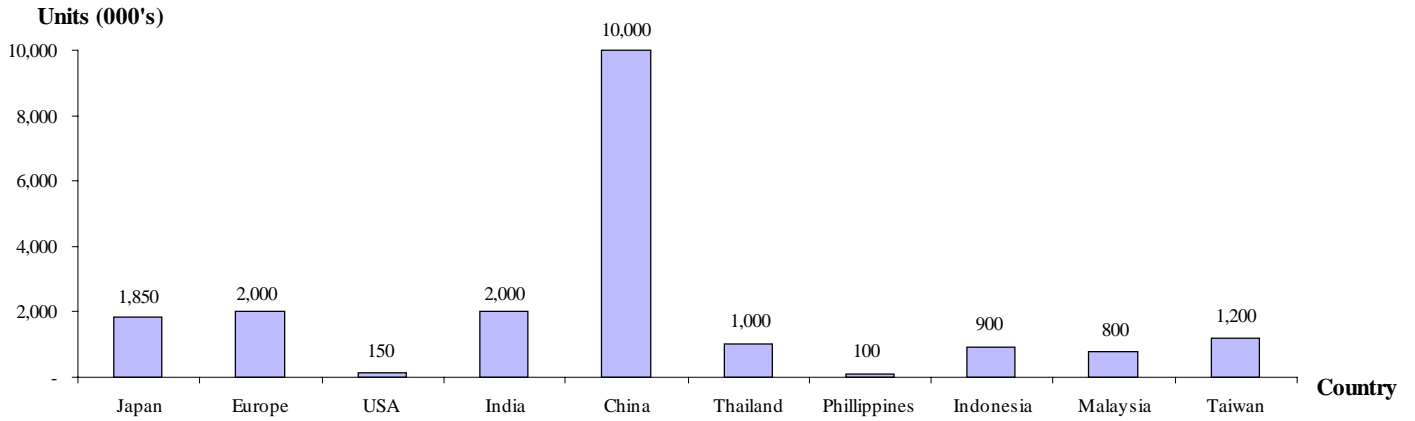
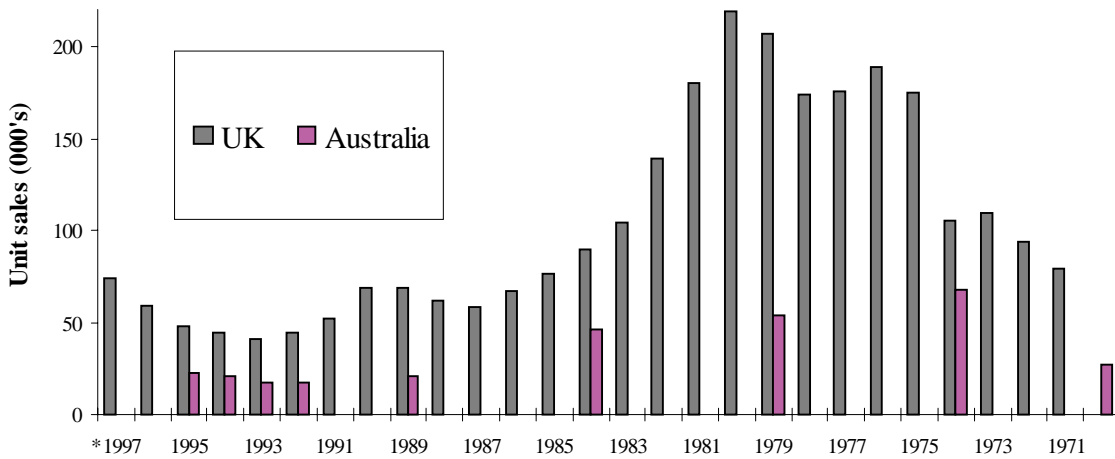


Exhibit 5: History of UK and Australian motorcycle sales (1970–97)



*1997 figure annualised from January–July sales figures

Exhibit 6a: Australian motorcycle registrations by manufacturer

Year	1995	1994	1993	1989	1984	1979	1974	1969
BMW	867	861	663	546	1,503	415	607	65
Cagiva	93	49	25	2				
Ducati	641	445	299	300	456	464	953	242
Harley Davidson	3,258	3,095	2,587	1,755	847	500	519	53
Honda	6,530	6,436	5,611	5,609	15,896	19,010	26,025	11,252
Husqvarna	210	200	159	87	144	86	68	1
Kawasaki	2,916	2,669	2,562	3,187	6,382	6,336	6,102	1,705
KTM	427	333	143	130	214	27	14	
Moto Guzzi	162	102	104	173	256	114	80	16
Suzuki	2,331	1,816	1,940	3,409	9,063	11,515	11,280	5,658
Triumph	481	466	265	3	4	371	321	971
Vespa	59	2	5	61	50	100	230	227
Yamaha	4,284	3,973	3,018	4,964	10,673	14,067	17,999	4,584
Other	86	58	44	227	391	942	3,365	2,496
Total	22,345	20,505	17,425	20,453	45,879	53,947	67,563	27,270

Exhibit 6c: The average value of motorcycle imports per registered motorcycle (estimates \$A)

Year	1995	1994	1993	1989	1984	1979	1974	1969
BMW	16344	14124	16525	10533	4397	3101	2092	1277
Japan	10410	9304	9717	5844	1823	602	529	252
Harley Davidson	25938	23715	23394	18289	7503	4466	844	472
Average	18098	16626	17277	11207	2071	683	577	279

Source for Exhibit 6: Australian Bureau of Statistics (ABS), *Motor Vehicles in Australia*, publication 9311.0, 1997.

Note: Average value defined as the value of imports divided by the number of registered vehicles.

Exhibit 6c: Value of motorcycle imports by source (A\$m)

Year	1995	1994	1993	1992	1991	1990	1989	1984	1979	1974	1969
Germany	14.17	12.161	10.956	8.921	3.935	4.874	5.751	6.608	1.287	1.27	0.083
Japan	167.189	138.573	127.591	115.351	87.85	88.376	100.343	76.577	30.676	32.462	5.856
USA	84.507	73.397	60.519	54.386	39.101	29.341	32.098	6.355	2.233	0.438	0.025
Other	138.523	116.782	101.988	83.903	79.48	84.462	91.029	5.476	2.642	4.8	1.648
Total	404.389	340.913	301.054	262.561	210.366	207.053	229.221	95.016	36.838	38.97	7.612

Exhibit 7a: European motorcycle market data (units sold)

Country	1996	1995	1994
UK	58,802	*46,695	44,729
France	115,814	84,461	84,870
Germany	271,467	217,495	212,848
Italy	87,927	80,320	73,914
Spain	30,570	34,251	34,811
Austria	20,781	18,160	16,212
Europe (Total)	676,417	567,290	541,851

*The UK MCIA quotes a figure of 47,429

Exhibit 7b: The number of greater than 750cc models by sales ranking in the European market

Country	Top 50			Top 10		
	1996	1995	1994	1996	1995	1994
UK	20	19	21	4	3	3
France	13	18	16	3	2	2
Germany	17	21	16	0	0	1
Italy	11	8	12	1	0	0
Spain	5	8	6	0	0	0
Austria	22	22	20	4	3	3
Europe (Total)	16	16	18	1	1	1

Exhibit 7c: Sales volume of top-ranked model and the 50th-ranked model in the European market (high ranking scooters and mopeds and Honda C90 excluded)

Country	Top-ranked model			50 th -ranked model		
	1996	1995	1994	1996	1995	1994
UK	2,460	1,830	1,783	292	243	254
France	4,250	2,174	1,989	643	531	594
Germany	5,880	7,047	7,846	1,662	1,463	1,365
Italy	2,678	2,819	2,975	444	402	415
Spain	1,185	1,456	1,501	157	169	185
Austria	726	746	695	113	96	94
Europe (Total)	13,643	11,896	12,944	3,539	3,038	2,940

Exhibit 7d: Sales volume of top-ranked model in the greater than 750cc class in the European market

Country	1996	1995	1994
UK	2,460	1,649	1,783
France	2,947	1,666	1,860
Germany	3,924	3,794	3,859
Italy	1,803	1,110	941
Spain	305	409	331
Austria	726	472	464
Europe (Total)	8,518	7,032	9,059

Exhibit 7e: The market share of the top fifty models in the European market

Country	1996	1995	1994
UK	65%	61%	62%
France	66%	62%	59%
Germany	66%	64%	66%
Italy	73%	67%	65%
Spain	72%	74%	73%
Austria	72%	76%	78%
Europe (Total)	49%	47%	48%

Exhibit 7f: Sales volume and brand of the top ranked cruiser (greater than 750cc) model in the European market

Country	Sales volume (units)			Top-ranked brand		
	1996	1995	1994	1996	1995	1994
UK	361	428	369	Yamaha	Yamaha	Yamaha
France	1,261	802	708	Kawasaki	Honda	Harley Davidson
Germany	2,705	3,058	3,051	Kawasaki	Suzuki	Suzuki
Italy	535	586	767	Harley Davidson	Harley Davidson	Suzuki
Spain	305	227	210	Harley Davidson	Harley Davidson	Kawasaki
Austria	726	456	416	Kawasaki	Yamaha	Yamaha
Europe (Total)	7,192	5,277	5,423	Kawasaki	Yamaha	Yamaha

Shaded cells denote a large capacity bike (greater than 1100cc). Unshaded cells denote a small capacity bike (greater than 750cc but less than 900cc).

Source: Australian Motorcycle Company provided all the data for exhibits 7a–7f.

Exhibit 8a: Sales in the major markets of greater than 750cc motorcycles ('000s of units)

	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986
North America	140.3	124.0	100.5	92.3	80.7	84.2	70.1	92.5	97.3	107.2
Europe	139.9	128.7	129.8	128.0	104.0	96.1				
Japan/Australia	35.5	34.0	31.8	28.2	24.6	26.1	20.9	19.8	16.5	12.6

Source: Harley Davidson, *Annual Report*, 1995; R.L. Polk & Co, Giral S.A., JAMA, ABS.

Exhibit 8b: Sales in the major markets of greater than 650cc motorcycles and Harley Davidson's share ('000 units)

	1996		1995		1994	
	Units	Harley Davidson segment share	Units	Harley Davidson (segment share)	Units	Harley Davidson (segment share)
North America	178.5	47.6%	163.1	47.2%	150.4	46.2%
Europe	224.7	6.9%	207.2	7.4%	201.9	7.1%
Japan/Australia	37.4	21.9%	39.8	19.8%	38.8	19.6%

Source: Harley Davidson, *Annual Report*, 1996; R.L. Polk & Co; Giral S.A.; JAMA; ABS.

Exhibit 8c: Manufacturers' share of the greater than 750cc motorcycle markets, 1995 (percent)

	North America	Europe	Japan	Australia	World*
Harley Davidson	54.9	10.9	17.0	40.9	31.7
Honda	17.8	14.2	9.5	13.0	15.4
Kawasaki	8.7	11.6	25.9	9.8	11.5
Suzuki	7.9	14.6	10.0	4.9	11.0
Yamaha	4.2	16.5	23.3	7.8	11.4
Japan	38.6	56.9	68.7	35.5	49.3
BMW	3.0	19.7	5.4	9.9	10.8
Cagiva/Ducati		5.0	4.3	4.8	2.7
Triumph		5.2		7.2	2.5
Moto Guzzi				1.5	0.0
Other	3.5	2.3	4.5	0.2	3.0
Market size (units)	140,300	139,900	27,534	7,966	315,700

*calculated estimate. Source: Harley Davidson, *Annual Report*, 1995; R.L. Polk & Co, Giral S.A.; JAMA; ABS.

Note: All Harley Davidson models have capacities of 883cc or more. Therefore the number of HD's units sold in greater than 650cc and greater than 750cc markets is the same. Because the greater than 650cc market includes more models, HD's share of this segment is smaller than in the greater than 750cc segment. The heavyweight segment is sometimes defined as greater than 650cc or 750cc.

Exhibit 9: USA market analysis for greater than 650cc motorcycles, 1992–96 (units sold and percent share)

	1996	1995	1994	1993	1992
<i>Units sold</i>	<i>165.7</i>	<i>151.2</i>	<i>140.8</i>	<i>123.8</i>	<i>104.2</i>
Share (percent)					
Harley Davidson	48.2	47.7	46.3	47.9	50.1
Honda	18.8	20.2	22.5	20.1	17.9
Kawasaki	12.2	10.6	9.8	9.7	9.1
Suzuki	8.7	9.6	10.6	12.1	13.1
Yamaha	5.9	5.8	5.6	5.8	5.3
Other	6.2	6.1	5.2	4.4	4.5
Tourers and cruisers	80.0	78.0	76.0		
HD share of tourers and cruisers	60.3	61.2	60.9		

Source: Harley Davidson, *Annual Report*, 1996; R.L. Polk & Company. The registered motorcycle population in 1994 was 3,679,701 units. Source: US Census Bureau.

Exhibit 10a: Established manufacturers' product range

Company	Sport	Sport/ touring	Touring	Cruiser	Standard	On/off road	Off road	Racing
Honda	✓	✓	✓	✓	✓	✓	✓	✓
Yamaha	✓	✓	✓	✓	✓	✓	✓	✓
Suzuki	✓	✓		✓	✓	✓	✓	✓
Kawasaki	✓	✓		✓	✓	✓	✓	✓
Harley Davidson			✓	✓				✓
Buell ¹	✓							
BMW		✓		✓	✓	✓		
Aprilia	✓				✓	✓		✓
Cagiva		✓			✓	✓		
Ducati	✓	✓						✓
Bimota	✓							
Triumph	✓	✓			✓	✓		
Moto	✓		✓	✓	✓	✓		
Laverda	✓							
KTM						✓	✓	✓
Husqvarna ²							✓	✓

¹ 49% owned by Harley Davidson, ² 100% owned by Cagiva

Exhibit 10b: Emerging manufacturers

Company	Sport	Sport/ touring	Touring	Cruiser	Standard	On/off road	Off road	Racing
MZ					✓			
Polaris				✓				
Hunwick	✓			✓				✓
Hallam								

Exhibit 10c: Custom builders

Company	Country
Egli	Switzerland
Spondon	UK
Harris	UK
Over	Japan
Britten	New Zealand
Vee Two	Australia
Drysdale	Australia
Segale	France
Voxsan	France

Exhibit 11: Selected financial results—1996

	Harley Davidson (US\$ m)	BMW (DM m)	Yamaha (US\$ m)
Sales revenue	1,531	935	3,984
Operating expenses	1,311		3,770*
Operating income	221		
Profit	143	19	214
Assets	790		3,179
Capital expenditure	179		232
Motorcycle sales revenue	1,199		
Parts and accessory revenue	210		
General Merchandise revenue	91		
Cost of goods sold	1,041		
Selling, admin & engineering	262		
Units sold	118,771	50,340	
Employees	5,200	1,754	
World market share (> 750cc mkt)	31.7%	10.8%	11.4%
Revenue per bike (US \$)	10,097		
Accessory revenue per bike (US \$)	1,770		
Bikes produced/employee	22.8	27.9	

Source: Company annual reports, 1996 *includes taxes