

NC 0021287 3



Acknowledgements

I would like to thank:

My tutor Dr Paul Carffrey for his guidance and help.

The Garda of the Garda Siochana Motorbike depot, Phoenix Park, Dublin, for their help and allowing me to photograph their motorbikes.

The staff at the Automobile Association vehicle depot, New Market Sq, Dublin, for their help and for allowing me to photograph their motorbikes.

Robbie Jones of Honda (U.K.), London for his time and help.

Contents

	Acknowledgements	1
	Contents	2
	List of plates	3
1	Introduction	page 4
2	Chapter 1	
	What are authority motorbikes?	8
	An expensive resource.	9
	Reason for the success of authority motorbikes.	10
3	Chapter 2	
	Design specification.	12
	Difference between authority and public motorbikes	12
	- Safety	13
	- Maintenance	14
	- Seating	14
	- Storage space	15
	- Power requirements and extra equipment	15
4	Chapter 3	
	Authority motorbikes in use: The Garda	19
	- Kawasaki	19
	- Honda	23
	- BMW	26
	- Others	28
5	Chapter 4	
	Image of Authority motorbikes.	29
	Popular image of the motorbike.	
6	Chapter 5	
	The Design of Authority Motorbikes	32
7	Chapter 6	
	The Norton Commander.	35
8	Conclusion	39
	Bibliography	41

List of Plates

1	Japanese style motorbike	page	4
2	American style motorbike		4
3	A BMW authority style motorbike		5
4	One the first BSA 250 cc motorbikes bought by the Garda Siochana.		9
5	BMW motorbike used for rapid response by the Automobile Association		11
6	Rotating beacon and crash bars on a BMW authority motorbike		16
7	Identification lights, sirens and front crash bars on a BMW authority motorbike		17
8	BMW authority motorbike before maintenance.		18
9	BMW authority motorbike during maintenance.		18
10	Kawasaki motorbikes before conversion for Authority use.		21
11	Kawasaki as originally supplied with only half fairing.		21
12	Kawasaki with full fairing and lights.		22
13	The Honda CBX Police Special.		22
14	Honda CBX Police Special panniers.		24
15	Honda ST1100 Police.		25
16	Honda ST1100 Police as supplied.		25
17	BMW authority motorbike as supplied		27
18	BMW authority motorbike		27
19	Norton Commander with its unique one part body.		37
20	Norton Commander integrated equipment.		38
21	Norton Commander integrated panniers.		38

Introduction

Vehicle design is an area which is in a constant state of change as it follows and in turn influences the trends of its markets. Motorbikes like cars are symbols of their owners status and personality. Their designs, which most continuously change to be competitive, largely rely on giving the appearance of speed, power and luxury and by predicting the attitudes of their markets. They most continuously give the appearance of advancing in innovation, technology and design to remain competitive. The ownership of a motorbike is however, unlike the majority of vehicles, difficult to justify as a practical object and they are generally seen as leisure vehicles. They can only carry two people at most and their riders are completely open to the elements. To compensate for their lack of practicality motorbikes rely on enforcing their image of freedom, youth and individuality. Even more than the car they rely on their image in order to sell. American motorbikes do this through their leather trims, chromed and glossy bodies and laid back riding positions and Japanese motorbikes through their aggressive and compact appearance of high technology, power, and speed. (Plates 1 and 2)

Metallic Blue Violet / Candy Sungod Orange



Plate 1: Japanese style motorbike

Candy Cardinal Red (A1)



Plate 2: American style motorbike

There is a group of motorbike users however, Authority users, who being normally state run can only justify owning their vehicles if they are functionally effective and cost efficient.

Maintaining an adequate fleet of vehicles....justified by: (d) Reviewing on a continuous basis the performance of the Garda Siochana garage to asses its cost and efficiency. (Department of Justice, 1993, p. 21).

The range of motorbikes which they use are called authority or official user motorbikes. (Plate 3) This thesis is about the design of authority motorbikes.



Plate 3: A BMW authority style motorbike.

The idea of an authority motorbike would seem to be opposed to the image of the motorbike. The word authority suggest phases such as controlled, law abiding, predictable and uniform while the word motorbike suggests speed, danger, individuality and freedom. To the general public motorbikes are not seen as working vehicles due to their lack of protection and limited carrying ability. Despite its image and popular belief authority motorbikes are however to be found in use all around the world. Authorities have found an area were motorbikes can be justified. What is this area and what are the abilities of the motorbike which out weigh its impracticalities for authorities? Do motorbikes out perform other vehicles in certain requirements or situations? As authority users can not justify motorbikes designed for image alone what are their requirements? Which bikes do they use those of Japanese style compact and aggressive, of the American style of laid back or do they use motorbikes special designed to suit their requirements? How does the image of the authority motorbike interact with the popular image of the motorbike? In the broader design issues how do

manufactures design motorbikes for authorities users world wide? Do the designs vary from country to country according to specific requirements or do they use standard design which require customisation for each authority.

In order to answer these questions it was necessary to rely largely on first hand interviews with Authority users. This was due to there being very little published literature on the study of modern motorbikes or on the subject of authority vehicles. The majority of books relating to motorbikes are histories of the once great European industry or pictorial albums of classic motorbike designs such as CF Caunter, Motorcycles a Technical History, 1982 and Erwin Tragatsch, Motorcycles: An Illustrated History, 1980. The modern motorbike industry attracts little interest now that most of the western market is dominated by Japanese imports and also as motorbike design is an area which has changed and advanced very slowly in the last thirty years. It is not surprising therefore that there is very little literature relating to the use of motorbikes by authorities other than promotional catalogues produced by manufactures such as: Honda Motor Co. Ltd, ST1100 Police, 1997 and BMW Motorrad GmbH + Co, BMW Motorcycles for Official Users. Responsibility Means No Compromise, 1992. The interviews carried out therefore covered the areas of:

- authority motorbike sales and promotion
- specification and purchasing of authority motorbikes
- management of authority motorbike fleets and their uses
- maintenance of authority motorbikes
- training of authority riders
- riding of authority motorbikes
- use of authority motorbikes by other organisations

On questions of motorbike design however it is necessary to turn to literature on car design. There are many parallels that can be drawn between the design of motorbikes and that of cars in respect to design methods and imagery. The main books which influences this thesis are therefore not based on the

motorbike industry but on that of the car. The most relevant is Stephen Bayley's book Sex, Drink and Fast Cars, 1986. Bayley's book describes the symbolism and imagery of car design and how it has developed from the flamboyant designs of Harley Earl to today's 'zero defect' Japanese designs. Many of his descriptions and observations of the development of styles and imagery in American, European and Japanese car design and how they interact and reacted with popular culture are equally applicable to the development of the motorbike. His observations of the design methods of German car manufacturers explain much about the current state of the European motorbike design compared to the American and Japanese. "The German approach is different. The German passion is for Forschung (research), rather than display". (Bayley, 1986, p. 47)

CHAPTER 1

WHAT ARE AUTHORITY MOTORBIKES?

Authority motorcycles are those designed for use by public authorities such as the police, paramedics, disaster task-forces and rescue teams. The Police force is the Authority most commonly seen using them and for whom they are most valuable. Authority motorbikes are also used by non-Authority groups such as couriers and break down services such as the Automobile Association and Automobile Club. To the general public today the motorbike is seen mainly as a leisure vehicle. "...motorcycles in the United States, Europe, and Japan are used principally for leisurely rides." (Honda, Annual Report, 1996, p. 5). The car having replaced the motorbike as easier and more convenient for every day travel, particularly in colder climates. Their manoeuvrability, speed and size however makes them ideal for public authorities as working vehicles. They are generally used for patrolling, a job which motorbikes are particularly suited for in today's crowded city centres. Their advantages over other vehicles were indeed realised very early. The first vehicles bought by the Garda Síochána were not cars but BSA 250cc motorcycles in the late 1920s. The first car was not bought until ten years later. (Plate 4, p.9) Motorbikes were being bought in to replace the push bike in most Authority groups at the time as the roads became busier and faster. "Before the end of the '20s the German police were BMW -mounted and in the 1930s German traffic police patrols used sporty R51 machines." (Croucher, 1990, p.47) Today the motorcycle makes up a significant number of the Garda Síochána's vehicle fleet, up to seventeen percent (around two hundred and fifty motorcycles). This is a relatively large number in comparison with other authority forces; The UK police force recommend and maintain a level of only 10 percent as do most police forces world wide.



Plate 4: One the first BSA 250 cc motorbikes bought by the Garda Síochána.

AN EXPENSIVE RESOURCE

Part of the reason for authorities limiting their numbers is due to their relative expense compared to cars. Motorcycles are 3 times more expensive than cars to run and they take on average up to 6 days to repair compared to 2 days for cars. These problems are largely due to the vulnerable nature of motorbikes to accidents and the difficulty of carrying out even simple maintenance due to the inaccessibility of the engine block. The limit on their clock mileage is 45,000 compared to 100,000 miles for cars and modern authority motorbikes are relatively more expensive to buy than civilian motorbikes. In spite of their high cost however motorbikes carry less equipment than cars and authority users are not allow by law to carry more than 1 person at a time. This all combines to make motorbikes an expensive resource for most public authorities to justify. The 1995 report on value for money examination from the Department of Justice recommended greater control over the purchases of extra vehicles and use of existing motorbikes. (Department of Justice, 1996, p.21) The report has lead to a down sizing of

the Garda Siochana motorbike force. Were normally 40 to 50 motorbikes would have been bought a year to maintain the strength of the fleet, the number has dropped to 7 in 1996 and 4 in 1997. These recommendations are, despite all of the aforementioned, disagreed with by the majority of the Garda who make up the Garda Siochana Motorbike force. They see the motorbike fleet as being under utilised and its abilities misunderstood. They would argue for an increase in their number and a larger roll in patrol and general police duties. The managers of the Public Authorities try to maintain a balance between cost and effectiveness through control of the size of the motorbike fleet. It is difficult however to calculate the success of the authority motorbike purely from the statistics stated.

REASONS FOR THE SUCCESS OF AUTHORITY MOTORBIKES.

The reason for the continued success of motorbikes, despite their disadvantages, is because they are much more effective policing vehicles, in cities, compared to the cars. This is largely due to its size which allows it to weave and to attain higher speeds through busy traffic. It is also due to the fact the rider of a motorbike has the advantage of a higher and less restricted view of the surroundings than a person in a car. For this reason motorbikes are mainly used for patrolling the roads enforcing the traffic laws. They are also used but more rarely for general district patrolling. That is maintaining a presents in an area and ensuring that the peace is being kept. This is an area of the motorbikes ability that the Garda believe is underdeveloped. The job for which authority motorbikes are best known is that of escort vehicles. During state occasions or the movement of an important state figure authority motorbikes are a quick and effective method of clearing a path through traffic. They also, with all their lights flashing and high speed manoeuvres, add an air of importance and an amount of ceremony to a person or occasion. The least known area in which police motorbikes are used is undercover surveillance, normally during narcotic operations. The

motorbikes used for such duties are not usually authority motorbikes. Despite its ability of being able to quickly navigate through city traffic, authority motorbikes are not allowed to respond to emergency calls. A high speed response by a motorbike being seen as too dangerous a risk to the rider. It is exactly its speed through busy traffic however that attracts other groups such as couriers and break down services to the motorbike. (Plate 5)

Motorcycles provide the most cost-effective solution for emergency services tasked with responding promptly to calls for assistance on roads subject to rapidly increasing congestion. (Jones, 1996, p.86)

They use them to deliver people or objects quickly to where they are needed often using authority or similar motorbikes. The larger authority motorbikes are also used by authorities forces as objects of intimidation. The Garda acknowledge that the sight of several or even one of their motorbike riders, dressed as they are in their helmets, large riding clothes, gloves and boots, driving the bigger motorbikes, with their full fairing, all lights flashing and siren wailing is used to intimidate individual people or crowds if they are breaking the law. The authority motorbikes success as a city patrol vehicle and its ability to be more than just a means of transport has made it worth its expense to Garda motorbike squad.



Plate 5: BMW motorbike used for rapid response by the Automobile Association

CHAPTER 2

DESIGN SPECIFICATION

When buying new motorbikes a specification is put together by the Garda fleet manager of the motorbikes requirements. This specification states what the Garda fleet require in an authority motorbike and is put out to tender EU wide. There are as standard a number of items all authority motorbikes must have: single seat which gives rider upright posture, large amounts of storage room for all necessary equipment, wiring capable of handling the power needs of authority equipment and which do not cause interference with radio, shaft rather than chain drives and they must be all white in colour. The specification is based largely however on two areas, safety and ease of maintenance. Safety standards of authority motorbikes are very high. They insure that the bike is clearly visible when in use and gives a high standard of protection in the event of a collision. Ease of maintenance means all motorbikes must have a high standard of reliability and be reasonably easy to disassembled and reassembled. A large number of motorbikes are usually put forward by a range of manufactures. A number of those which best comply with the specification are then put on trial and tested in a number of working situations. During these tests the Garda are looking for a motorbike that will operate well under the widest number of situations and a motorbike that is reliable and easy to maintain. The motorbike must also comply with the type of image which the Garda maintain as a public service. The standard Garda Siochana specification is basically the same one to which authority motorbikes are designed.

DIFFERENCES BETWEEN AUTHORITY AND PUBLIC MOTORBIKES

There are not that many differences between authority and public motorbikes in design. As previously mentioned the standards of safety, reliability and maintenance are higher, they only have a single seat, the bike requires a large amount of storage space and the wiring must be able to handle the extra power

requirements of the equipment required by authority users. Few authority motorbikes other than the Norton, have however tried to integrate the equipment used by authorities such lights, beacons and sirens into the actual design of the bike. Many of the items which distinguish an authority from a public motorbike are bolted on after manufacturer.

Safety

Authority motorbikes, as they are used by public authorities and as they must set good example to the general public, need to give much higher standards of protection against the elements and from crashes compared to civilian bikes. Authority user must be able to use their motorbikes all year round. The fairing on authority motorbikes therefore wraps right around the front of the driver causing most wind and rain to pass over and around the bike giving the rider the ability to drive in most conditions. Underneath the fairing and often supporting it are crash bars which are not normally to be found on civilian bikes. (Plates 6 and 7, pp. 16 and 17) These are situated and designed to give way and break in the event of a crash therefore absorbing the energy of an impact. They are mostly designed to protect the bike rather than the driver as there is very little protection that can be given to the rider. The rider is usually thrown from the bike during a crash or will try and get away from the bike during a crash, as they are trained to. Staying with the bike during a crash will usually result in injure. The riders main protection from injury is his clothing and helmet. Nearly all authority bikes are brilliant white in colour making them stand out in city traffic. To further increase their visibility when travelling at high speeds they have a range of lights and sirens not found on civilian bikes. The basic range of lights includes a pair of flashing identification lights attached to the front fairings and an extendible rotating beacon attached to the back panniers. (Plates 6 and 7, pp. 16 and 17) The sirens are usually attached to the front crash bars beneath the fairing. (Plate 6) These lights and sirens have many functions including

identifying the vehicle and authority, warning of their approach to other vehicles but mostly a combination of both of keeping the driver and vehicle safe and decreasing the likelihood of a crash by making the motorbike highly visible. The size of a motorbike which gives it the ability to weave through traffic means that it has a small silhouette when seen from in front or behind making it difficult to see especially at high speeds.

Maintenance

One of the issues that is very important to Authority users which is not met in the design of most motorbikes is the ease of maintenance. The easier a motorbike is to maintain the cheaper it is to run and shorter the standstill time i.e. time spent not on the street in use. This is important as Garda Motorbikes are ridden continuously by 3 shifts of riders meaning that a lot of man hours can be lost due to maintenance. The problem with most authority motorbikes is that they are encased in large fairing panels, bolted crash bars, a fuel tank and panniers, all of which must be laboriously removed for even simple maintenance of the bike. No authority motorbike in use has yet succeeded in fitting full fairing, necessary for driving in cold climates, which allows easy access to the motorbikes engine block beneath. (Plates 8 and 9, p. 18) A number of pieces of equipment have been changed over the years in order to increase reliability. All modern authority motorbikes use a shaft drive system to deliver power to the back wheel, similar to a car, rather than the traditional chain which frequently needed maintenance. Majority of bikes are also fitted with electronic ignition meaning the bike starts quickly and is less likely to fail.

Seating

Comfort is important when a rider may spend up to 8 hours at a time on a motorbike. For this reason authority motorbikes have upright seating positions based on the touring motorbike seat. This position is higher than normal making the riders back and neck straighter and allowing a larger

more comfortable leg angle compared to most civilian bikes. Low seating positions result in strain and injury to back and neck muscles and causes the rider to become quickly fatigued. The higher seating position also gives the rider a better view of the surroundings which is important for negotiating through traffic. It makes the rider more visible to other drivers which is very important for safety both physically and psychological. A motorbike is easily toppled being naturally unstable and its open nature gives the rider very little feeling of protection from other vehicles. The upright setting position also improves the image of the authority, making the rider appear to be more alert compared to the lower positions, which normally give the rider an aggressive appearance. This very important to many public authorities such as the police whose riders are highly visible to the public.

STORAGE SPACE

Authority motorbikes usually have two to three panniers, one on either side and the third on top. All three situated at the rear of the bike placed more forward than normal, filling the space where a pillion would sit, in order to improve the balance of the bike. The basic objects that must be fitted in these panniers are aerial, transceiver and other radio equipment, a first aid box, a fire extinguisher, wet weather clothing and possibly a removable extra battery. (plate 6, p. 16) Room is also needed other material depending on the job eg. the AA carry a small tool kit.

POWER REQUIREMENTS AND EXTRA EQUIPMENT

Authority bikes carry a radio and various lights which means they require a larger power supply than public bikes. They also require special repressed wiring as normal electrical wiring causes interference with the radio signal. Apart from the equipment mentioned, in or on the front fairing, authority motorbikes usually have a speaker connected to the radio. This speaker allows the rider to hear the radio when some distance from the bike or if he takes his helmet off.



Plate 6; Rotating beacon bolted on to the rear mudguard and pannier of a BMW authority motorbike. Note also the two crash bars which are attached perpendicular to the motorbikes length. The rear panniers can be seen, the top one containing the radio.



Plate 7: The two blue identification lights are bolted to the front fairing and the two sirens are bolted to the front crash bars of this BMW authority motorbike. Note also the slim profile of the motor bike when seen from directly in front.



Plate 8: BMW authority motorbike before maintenance, Note it only has a single seat



Plate 9: BMW authority motorbike during maintenance, the side fairings, side panniers, and part of the front crash bars have been removed and the seat hinged up.

CHAPTER 3

AUTHORITY MOTORBIKES IN USE: THE GARDA.

There are a wide range of motorbikes used by Irish Authority groups not all of them are authority motorbikes. The wide range is due to the fact that the Garda has never developed a strong loyalty to any one company as has happened with most European Authority users. They have until recently preferred to buy motorbikes according to their merits and success in working situations. There are two main types of working situations, general patrol and traffic patrol. Both situations require motorbikes that can run for long periods of time at low speeds as this is what is involved in the majority of patrolling. The 550s and 750s motorbikes are used for general patrolling and rarely need to reach high speeds. The larger motorbikes 750s to 1100s are used for traffic patrol and escort duty. This is as they require a motorbike which can also easily handle high acceleration and deceleration through traffic and will be seen at high speeds. The larger motorbikes are also required as this type of riding is very hard wearing and if the motorbike is not strong enough it will quickly fail. The motorbikes used are mainly supplied by three companies BMW, Honda and Kawasaki.

The motorbikes currently used by Authority users are Kawaski 550 and 750 GTIs, Honda CBX 750s and ST1100s and BMW K1100s and K 75 RTs.

Kawasaki (The GT 750 and the GT 550 touring bikes)

Kawasaki did not design authority motorbikes or even motorbikes for conversion to Authority use. Their motorbikes are designed for civilian users and yet they were one of the most popular types of motorbikes among Authority users world wide, they make up 70 to 75% of the Garda police force. (Plate 10, p. 21) Their success was mainly due to their reliability and and low cost compared to motorbikes specifically designed for Authority users. This lead them to start supplying a number of accessories to ease their conversion to Authority use. The two motorbikes which the Garda bought were

the GT 750 and the GT 550. They are both touring motorbikes and therefore designed for reliability and comfort. The fact that they are civilian motorbikes however means they require a large amount of modification for use by authorities. They come with two seats rather than the standard one. It is illegal for Authority user motorbikes to carry any more people than the driver and the space freed by having only one seat is usually taken by the radio equipment. When they arrive at the local dealers these motorbikes are red in colour and require spraying white for use by the Garda. Their wiring requires modification. That is the capacity of the transformer is increased to handle the extra power requirements. Full fairings, in white, which are now supplied by Kawasaki, are fitted to the bikes after spraying. They used to supply the motorbikes with only half fairing but the demand from Authority users lead them to design and supply separately full fairing. (Plate 11, p. 21) The fairing which is bigger than the bikes were design to to take means that the Garda engineers most make and fit special brackets to extend the mirrors beyond the fairing. The lights and sirens for Kawasaki are also supplied and fitted separately.

The GT 550 is the smaller of the two Kawasaki motorbikes used by the Garda Siochana. It is liked as its small size and lightness makes it easy to manoeuvre through traffic, for this reason they are used mainly for patrols, and as it is highly reliable needing little maintenance. They are also popular among couriers for exactly the same reasons. (Plate 12, p. 22)

The Kawasaki GT 750 were bought for the traffic Garda but despite offering more power than the 550 they are not popular among the Garda. Their extra weight and size cause them to be more difficult to handle in busy traffic.

The fact that they are civilian motorbikes makes them cheaper even considering the cost of conversion than specially designed authority motorbikes. They were designed to be simple, reliable and cheap however they do not have the same quality of image of those specially designed and the Garda Siochana are no longer replacing them as they go out of service.



Plate 10; Kawasaki motorbikes before conversion for Authority use, 550 in red and 750 in blue.



Plate 11: A Kawasaki 550 as originally supplied with only half fairing.



Plate 12: A Kawasaki 550 with full fairing and lights.



Plate 13: The Honda CBX Police Special: American styling.

Honda (CBX 750, ST 1100)

Honda have been designing and supplying motorbikes for Authority users since the 1960s. They designed and manufactured one of the first authority motorbikes specifically for Authority users the CBX Police Special. (Plate 13, p. 22) The Garda force originally bought them as at the time there was no other bike especially built just for police use. It was originally supplied without fairing as it was designed for warm American climates but they were later supplied with half fairing as their popularity grew. They have only one seat designed for riding in an upright position and are ready fitted with all necessary lights and sirens. They also come with in built radio and even a special light and clip on the top back pannier for the police to use when writing traffic tickets. (Plate 14, p. 24) Their classic American design with large amounts of chrome tubing, large round dials and highly styled back panniers make the bike very popular with the more image concise users. They however are usually used only in the summer as they offer very little protection from the elements. They are a popular motorbike from the point of view of easy maintenance. The half fairing and well placed crash bars makes it easy to get at the engine block to carry out repairs. The CBX has changed little since its initial design and Honda have recently introduced a new range of authority motorbikes based on their Pan-European touring motorbikes rather than redesigning the CBX.

Honda's new authority motorbike is the ST 1100. (Plates 15 and 16, p. 25) It is based on Honda's biggest touring motorbike the Pan-European. The Pan-European was designed for comfort and easy handling, it comes with up right seating position and full fairing with in built heating ducts for driving in winter. According to Bob McMillian, a former British Police advanced motorbike instructor when he first rode the Pan-European, he realised its combination of performance, high speed handling, low speed manoeuvrability and absolute comfort would make it a brilliant authority motorbike. (Jones 1996, p. 86) The original design of the Pan-European was altered to handle

hard wearing and constant use by having its chassis and front forks strengthened and to accommodate the extra accessories required by Authority users. Its comfort, handling, ergonomically laid out control panel which allow lights, radio, etc. to be operated without the rider removing his hands from the handle bars and its sleek appearance make it popular among Authority users. Its large power output means that it is only driven by advanced riders and in the Garda Siochana its use is limited to the instructors only. It is the largest authority bike produced actual being too large for use in city traffic. It is instead used in training, escort duties and patrolling of busy main roads such as motorways.



Plate 14: Honda CBX police special showing panniers and chrome detailing. Note blue light and clip on top of the top pannier for holding tickets.



Plate 15: Honda ST1100 Police.



Plate 16: Honda ST1100 Police as supplied.

BMW (K 75, Pan-European 1100)

BMW have been supplying motorbikes to official users since the 1930s. They now offer the largest range of authority motorbikes of any manufacturer. A range they call 'Official User Motorbikes'. (BMW Motorrad GmbH + Co, 1992, p. 1) They are completely designed for Authority users. The BMW comes with a single seat, full panniers, full fairing and is delivered all white with lights etc. fitted. BMW offer a large range of accessories to convert their motorbikes to the requirements of nearly all counties and climates. Their motorbikes also have in built speaker and socket for the riders helmet microphone. As the motorbike comes ready kited with the required equipment it makes it initially a cheaper bike to buy compared to other authority motorbikes. (Plate 17, p.27) Despite BMW's decades of experience in the field of authority motorbikes the motorbikes have a number of handling difficulties which turn riders away from them. The extra lights that are required by Authority users protrude from the fairing, as they are not built in. This reduces the bikes aerodynamic qualities and causes handling to be difficult at speeds in excess of eighty five miles per hour.

The K 75s are liked by their riders as they give a high degree of protection from the elements and their handling is relatively good. (Plate 18, p. 27)

The BMW Pan-European 1100 is a recent bike to the Garda. It is very large in power and size and like the Honda ST 1100, it is only driven by instructor class riders. It is a heavy bike but being based on a touring motorcycle has good handling and is very comfortable to ride for long periods of time. All the radio equipment is built into the front fairing making it easy for the rider to reach and operate. Both models of BMW motorbikes are however difficult and expensive to maintain their large full fairing needing to be removed for even the most basic of maintenance. They however have a very good image due to their long history of success in this area and their name which makes making them highly coveted by riders. They are often chosen for these reasons for public appearance such as state occasions and escort work.



Plate 17: BMW K 75 RT authority motorbike

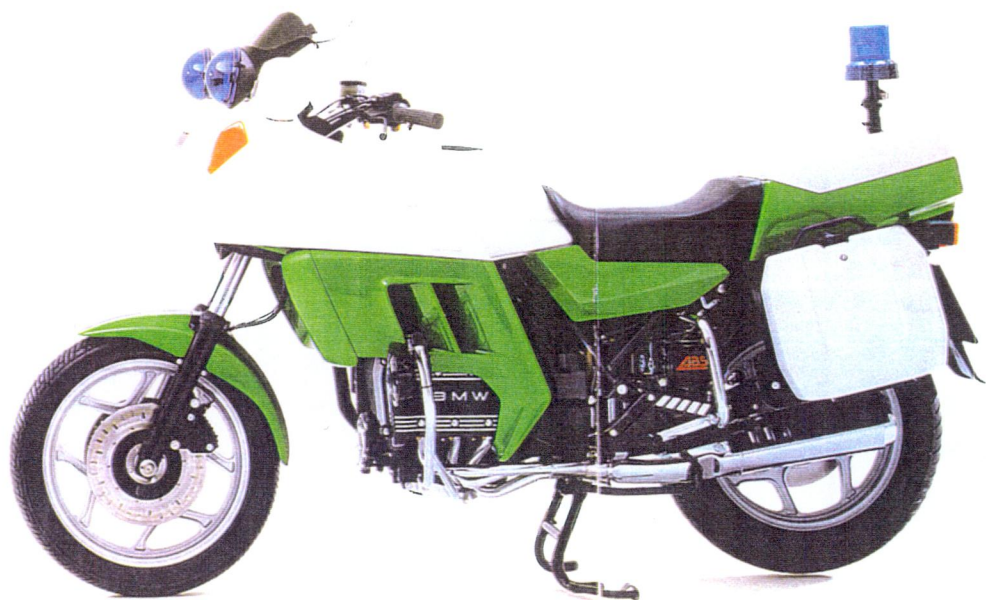


Plate 18: BMW authority motorbike

OTHERS

The Garda also maintains a number of smaller cc motorbikes (such as Suzuki scramblers) for under cover and surveillance work. They mainly consist of a number of Suzuki Scramblers and Kawasaki Motorbikes that have not been fitted out for authority use but are maintained to look like courier and civilian motorbikes.

CHAPTER 4

IMAGE OF THE AUTHORITY BIKE

The image of the authority motorbike is closely related to the Authority using it. In the case of the Garda they claim this amounts to little more than all vehicles being white in colour with the forces identifying regalia stuck on. The Garda identifying marks consists of two decals, a gold strip flanked by two blue strips, running length ways from front to back along the midriff and the Garda emblem or coat of arms placed on the motorbikes petrol tank. Sargent Huge Rudy in control of the Garda motorbike fleet, says the corporate image of the Garda is based more on the safety of the rider, being seen by other drivers, rather than on presenting a particular image to the public. (Larkin, 1996) In choosing their markings they tested several varieties to find the most visible. However according to Bod, a police force is perhaps the ultimate service activity and each contact that we have with a police force largely depends on the behaviour of each police officer. (Bod, p. 165,1996) In the case of police motorbike forces which tend to be highly visible each contact depends on what you see. The plain white colour with simple strips does make the Garda Siochana motorbikes easy to identify but it also presents a clean and neat image to the public especially combined with the upright driving position and the neat black leathers and white helmet of the Garda motorbike uniform. Garda motorbikes are cleaned and checked by their riders daily. Image is considered important for the larger authority motorbikes as these tend to be used for escort duties during state occasions. BMW and Honda 1100s are not used because more power or size is required in fact it is more impractical for such occasions. 1100 authority motorbikes are not just more powerful than other bikes but are considerably larger. Their large bodies completely enclosed in sleek moulded fairings are designed to impress the onlooker. The big motorbikes, ridden accurately in teams and at great speeds by instructor class drivers, present a powerful image of power, control and confidence to the public and foreign states persons alike. This is an image

which is not normally associated with the motorbikes today.

POPULAR IMAGE OF THE MOTORBIKE

Motorbikes are popularly associated with the American image of freedom eg. freedom of spirit, freedom of the open road. The people who ride them are seen as trying to show themselves as being different to others, less conventional, more courageous and unpredictable. Motorbikes, today, are also connected with the image of the courier and therefore, to most drivers, with a group of people who are considered the 'cowboys of the road'. Couriers are generally thought of as rude, grubby in appearance and dangerous drivers. This is an image that Authority users most combat from tainting theirs especially as couriers may often be using the same types of motorbikes. They manage to do this by maintaining their motorbikes and appearance and in Europe by having a distinct design aesthetic.

Authority Motorbikes designed for or in Europe do not seem to call up images normally associated with motorbikes. Their designs do not rely on the classic American style of laid back seating, chrome parts or tear drop shaped fuel tanks nor on the Japanese style of compact aggressive looking bodies. They have developed an individual style which has developed out of their mainly German heritage through BMW and their association with Public Authorities. The lines of an European authority motorbike run almost parallel to the ground therefore avoiding looking either aggressive or overly relaxed and the motorbikes high and upright sitting and handle bar position gives the driver an alert appearance. It is most apparent in the fuel tank and panniers of BMW motorbikes which are simpler and boxier with larger unadorned flat surfaces to those of the Japanese or American designed bikes. It is a design style with which BMW have in fact reached different civilian markets to does usually associated with motorbikes. They are an older group of people who have money and are attracted by the BMW motorbike sober, responsible appearance and name.

...a BMW gives off very safe aromas. Its drivers inhabit a world of ski holidays and expensive dry cleaners. The perfect pleats and folds and tucks, the lapiary finish, are tangible evidence of order and of the discriminating disbursement of funds. (Bayley, 1986, p. 73)

To this market owning a motorbike is still placing them apart from the norm but they can maintain a reputable image. Over the last thirty years this has lead to an increase in the number of bikes in Europe used as means of transport and not just leisure vehicles. This new market which is changing peoples perceptions of motorbikes and their riders is based on a style which BMW have developed from over sixty years of designing authority motorbikes.

CHAPTER 5

DESIGN OF AUTHORITY MOTORBIKES

The European authority motorbike market, and much of the south Asia, is dominated by BMW. After the second world war despite the success of Japanese motorbikes worldwide BMW established themselves as 'the authority motorbike' supplying to over one hundred and ten countries. Even English authority users changed to BMW during the eighties, despite, according to Croucher, the outcry of the public against buying foreign and the forsaking of British industry. (Croucher, 1982,p. 51). The use of white by authority users for their motorbikes and their well kept appearance reflected well on BMW. With time they, built an image, through their connection with Authority user and the historic connection of German industry with technology and engineering, of responsible driving, reliability and smart appearance. An image that built strong loyalties and proved very successful in the European and international market. Even Norton, who had a tradition of supplying authority motorbikes to the British police, was unable to compete with BMW when they recently reintroduced the revamped Commander. BMW are also successful in the Canadian market but have not had much success in the general American market. The styling of BMW authority motorbikes proving too European and sober for the American market with its history of flamboyance in vehicle design. The image of the motorbike itself having a strong connection with the countries national identity. The Harley Davidson motorbike, therefore, with its strong connotations of freedom, proved much more popular with American Authority users, despite its cumbersome and inefficient design. Likewise however the Harley Davidson has not been able to break the brand loyalties of European users. This is not due to its strong American styling but its poor performance. A Harley Davidson authority motorbike was recently supplied to the Garda for trial in response to one of their tenders for a number of new motorbikes. The motorbikes name and form was very popular with the Garda riders but the bike vibrate severely at

moderate to high speeds. The Harley Davidson had been designed to look good and be driven slowly and was turned down by the Garda. The American market has proved no problem to the Japanese motorbike manufactures.

The Japanese until recently ignored the European Authority market concentrating instead on the American market. The Honda CBX with its large amount of chrome tubing, shiny exposed engine block and its styling calling up images of Raymond Lowe streamlining was specifically designed to appeal to the American Authority market. Like nearly all the Japanese vehicles design for America it proved successful. Japanese motorbikes as designed by Kawasaki, although not originally designed for Authority users, did have limited success in Europe as well as America. This was due to Kawasaki motorbike designs being much more reliable, easier to maintain and cheaper compared to those produced in Europe or America at the time. Japanese attention has recently turned in earnest to the European Authority market. Were before Japanese manufactures entered the European vehicle market at the lower end out competing other manufactures on price, reliability and mass production they have entered the authority market at the high end, the 1100s. 1100s are not the main working motorbikes of most Authority forces being too large for much of city traffic patrolling. They are used for motorway patrolling but their main use is as the show cases for the police. When the police most make any official appearance such as escorting public figures or attending at public events they use the 1100s. These large motorbikes, during such occasions, become not only symbols of the police but often of a whole country. The Garda, for example, went from buying 40 to 50 motorbikes in 1995 to just 11 in the last 2 years. All of which were 1100s. The reason for the Garda, who are not normal overtly image concise, buying eleven of the most expensive type of authority motorbikes was due to Ireland holding the European Presidency for 1996. The Garda was constantly called on to escort varies visiting heads of states. The image of the Garda Siochana therefore became all important as it reflect on the government and country.

By entering the authority market with this motorbike Honda's most not just compete with the loyalty of BMW users in Europe but also with the BMW image which has built up from it constantly being used to represent different countries Authority forces. In order to compete with BMW in Europe they spent three years redesigning the 1100 Pan-European touring motorbike to suit the needs of Authority users. However by choosing to enter the authority motorbike market with a motorbike designed to appeal to European taste, Honda have a motorbike in an image suitable for authority users world wide. The Honda ST1100 is based on a range of bikes, Pan-Europeans, devised by BMW to suit the growing public market. A market which was created by the image of BMWs authority motorbikes. By combining a European style of what is conceived as a responsible and reputable appearance with the compact and fast appearance of Japanese motorbikes, Honda have given the ST 1100 the necessary image to compete successfully with BMW not just in Europe but in the world wide market.

Both Honda and BMW produce motorbikes for the authority market world wide, their designs most therefore allow flexibility of lay out and type of extras fitted to allow for the needs of different authorities. The extra equipment is bolted on to the basic design after the bike has been completed. Only one authority bike which was designed for the European market alone has attempted to integrate all the necessary equipment.

CHAPTER 6

THE NORTON COMMANDER

The Norton Commander was designed by Norton, England in 1987 specifically for Authority users. Norton hired the design group Seymour Powell to redesign the Commander, one of their old authority models which was replaced in England by BMW in during the 1970s (Croucher, 1982, p. 49), as a European police motorbike. According to Dick Powell their task was to try to create a standard paramilitary specification motorbike were none had existed before. (Morris, 1987, 468) In other words they wanted all the equipment which was normally bolted on to a standard authority motorbikes such as sirens, panniers, flashing lights etc. to be integrated into the overall design. A bike that when finish was ready for use by any police force in Europe without any modification being necessary. The result was a compact and sleek mixture of Japanese and European styles. The body of the Commander, made up of two major body panels and three panniers, is fully enclosed similar to Hondas ST1100. This gives it the compact look as with Japanese motorbikes. The panels are however designed so they join to make the whole motorbike appear as one almost seamless form. Its simple shape and large unbroken surfaces however give the bike a very European style. (Plate 19, p. 37)

The difference between the Commander and normal European and Japanese authority motorbikes was that the blue and white flashing lights which normally protruded from the front and rear fairing were integrated into the windscreen and back panniers and the siren was hidden beneath the front fairing. (Plate 20, p. 38) The bikes body is encased in a glass fibre shell which is unique in that it runs as one piece from the front fairing right down under the back panniers. This allows the allows the back panniers, which appear as one unit and as part of the over all form of the bike, to be easily dismountable. (Plate 21, p. 38) This over all encasing of the bikes body makes it more secure than other bikes. The integrated equipment is more

difficult to steal when the bike is left unattended then on normal police bikes where the equipment is just bolted on to the outside. (This was, however, incidental and not a deliberate design feature of Seymour Powell's.) Having all the equipment integrated into the body, as well as making the bike appear as a more unified design rather than a collection of customised parts, theoretically also improves the bikes handling. This is because there are no parts protruding into the air stream and causing unnecessary drag which is a problem for most authority motorbikes. The Commanders crash bars were also redesigned so they are integrated into the motorbikes over all frame rather than bolted on. According Morris, to allow the rider to jump off the bike in hurry, as may be necessary when a pursuit must be continued on foot, with out worry of damage to the bike as it falls on the ground. (Morris, 1987, p.468). The Commanders overall appearance is of a motorbike cleaner, more compact and more carefully thought out in design compared to other authority motorbikes. Its unveiling at the international bike show in England in October 1987 lead to comments such as "Perhaps the BMW pursuit bike, currently the (English) forces' favourite, now has a rival that can catch it." (Morris, 1987, p.468) This was proven untrue however and the Commander has had little success in England or aboard. Its initial success was due to the motorbike being bought in reminisce of the once great British motorbike industry. One of the reasons for the failure of the design to attract Authority users was due to the lack of time given for its development. The bike was given only 15 weeks from design to production compared to three years spent by Honda Germany on the ST1100. The integration of all the necessary equipment for authority users into the bikes overall fairing seems to have been only a cosmetic gesture. It has not been designed with consideration of ease of maintenance of the bike beneath. Authority motorbikes tend to be ridden continuously and therefore require constant servicing. The unique one part shell of the Commander along with the front fairing requires complete removal in order to get at the engine block which

greatly increases the maintenance time. The motorbike was powered by a water cooled rotary engine designed by Norton. This engine was the cause of many problems with the motorbike. It required constant maintenance which the design of the fairing made difficult and added greatly to the running cost of the bike. The engine also ran too fast for the general slow pace required for patrol work. The Commander has however proved to be a popular racing motorbike with the English police. A sport in which a fast engine speed is required and stripping the engine and difficult maintenance is expected. The Commanders is designed for authority use with consideration of cost and simplicity. Its unique and simple shell, which is cheap to manufacture, gives it a strong individual style but at the cost of easy maintenance. The reason for its failure however is more to do with its overall image. When Honda choose the Pan-European they choose a bike that combined a compact advanced appearance with a European authority style. The Commanders combination of styles in its one piece form does not achieve either.



Plate 19: The Norton Commander with its unique one part body.



Plate 20; The identification lights are integrated into the front fairing, the sirens and crash bars are integrated into the body underneath the Commanders shell. The finish is very clean with very little styling.



Plate 21: The rear lights and beacon are integrated into the back panniers which are also designed to form one shape with the body.

CONCLUSION

The authority motorbike is important to the modern public authority if they wish to maintain a functional presence in the increasingly busy cities of today. Only the motorbike gives authorities the ability to move freely and quickly through and/or to monitor city traffic. Authorities expect high standards of safety, comfort and reliability from their vehicles. They expect them to be effective, cost efficient and to perform well in many areas. The motorbikes they choose however are no longer judged on their functional ability alone. Increasingly Authority Users are looking for motorbikes which reflects their status. They want more than a motorbike which is powerful and reliable in performance they want it also to appear powerful and reliable in design. Norton failed to note this change in authorities attitudes. They built a motorbike which was relatively cheap, powerful and unsuggestive in its styling. A standard vehicle to appeal to all European authorities without requiring adjustment. Authorities users are not however all alike their are many subgroups with in groups each maintaining its own identity. In England for example their are 55 police authorities using authority motorbikes, each choosing and purchasing its motorbikes independently. (Croucher, 1982, p.51) The future of the authority motorbike is therefore not one of standardisation but of remaining flexible. Any new authority vehicle will like the Honda ST1100 need to combine the traditional image of the authority motorbike as developed by BMW with popular images of power, speed etc. as suggested by Japanese and American motorbikes, in order to be competitive. Authority motorbikes that do this will naturally become subject to changes in fashion. Considering all these requirements and the fact that the authority market is limited in size, future designs will need to be based on existing public motorbikes. Motorbikes designed to appeal to the European market as was the ST1100. Manufactures will not otherwise be able to produce the limited numbers of motorbikes that the authority market now requires and retain the flexibility to appeal to a range of Authority Users. Modern

manufacturing techniques allow the flexibility to produce limited numbers of existing production motorbikes slightly modified for authority users as they are required. Motorbikes which can then be customised with a range of accessories according to an authorities needs.

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