

Cost Benefit Analysis for Banksman Auto Braking vehicle based reversing safety system

Introduction

It is an undisputable, statistically proven fact, that year on year incidents involving a reversing vehicle account for between 20-30% of all reported work related serious injuries or fatalities.

The following web address will provide some statistical evidence to support this from previous years:

www.hse.gov.uk/workplacetransport/statistics.htm

The three predominant requirements of any fleet operator in the current global economic climate are:

- **Safe fleet operation leading to reduction of incidents and in turn associated cost.**
- **Protection of company assets.**
- **Operational efficiency and in turn reduction in cost.**

The above requirements have resulted in the growth in development of fleet management and safety systems that can offer the fleet operator assistance to achieve these three goals, which we shall categorise as '**Safety, Security and Savings**'.

Banksman Auto Braking is a reversing collision avoidance system. It is based around a fully programmable, intelligent **FMCW (Frequency Modulated Continuous Wave)** radar that will progressively warn the driver of any potential hazards to the rear of vehicle when in reverse, allowing him/her to take appropriate evasive action. If appropriate action is not taken for what ever reason and the distance to the hazard (animate or inanimate) becomes too close, the system will automatically apply the brakes at a predetermined distance that has been set in accordance with the relative speed of the vehicle.

At this point the driver can decide to override the system and reverse in a controlled manner, closer to the hazard to allow manoeuvring in tight spaces, or select a forward gear and move away.

Alternatively, the driver can decide to disable the system on a '**one shot**' basis prior to reversing and carry out the manoeuvre. The system will then audibly and visually warn the driver that the system has been put in '**auto braking inactive**' status and allow him/her to reverse in the '**progressive warnings only**' mode.

For retrospective, investigative purposes the system compiles a downloadable '**date/time**' based activity log, detailing not only the status and response of the system, but also the response/action of the driver to a given situation.



Overall the system is designed to reduce risk and improve aspects of operational safety

Some key benefits of the system are:

- Protects operatives, the 'reverse assistant' and third parties when the vehicle is reversed.
- Reduces the potential risk of a collision when reversing and therefore reduces asset damage, both owned and third party.
- With regards to the above two points, potential costs are avoided in the form of litigation and compensation for third party injuries/fatalities and asset damage claims.
- Reduces owned asset repair costs.
- Improves operational efficiency by reducing vehicle downtime resulting from the repairs.
- Logged information can be used to analyse system operation generally, but more importantly to assist the investigation process in the event of an incident.

The **Vision Techniques Banksman Intelligent Radar** product family has already been recognised by the HSE and other transport industry safety groups as a valuable tool to assist the fleet operator to achieve improved levels of vehicle reversing safety.

In fact **Vision Techniques** were presented with the award for '**Best Fleet Safety Product 2008**' for the '**Banksman Intelligent Radar System**' by the **Brake Fleet Safety Forum**.

Will the overall benefits outweigh the initial purchase costs?

We know from the reports that our customers provide, that the system will produce dramatic and demonstrable savings in fleet repair and maintenance costs, resulting from a reduction in accident damage and vehicle downtime caused by reversing incidents.

We also know that as a result of this reduction in incidents that associated costs relating to damage to third party property and subsequent claims are reduced i.e. litigation and compensation.

The knock on effect of the above on insurance premiums goes without saying, fewer accidents and in turn fewer claims equals lower annual premiums.

But above and beyond the above commercial savings the primary function of the system is to protect human life.

To be responsible for the death of another human being attracts penalties of the highest order in our society.

Can you really afford this cost?

Please visit <http://www.vision-techniques.com/intelligent-radar/banksman-auto-braking> to see a video of the system in action, or <http://www.vision-techniques.com/latest-news/> to find out more.



Case Study

The **Banksman Auto Braking** system has been primarily designed for use on large waste collection vehicles that operate in busy urban environments, where access is often limited and therefore the need to reverse the vehicle will often arise. Consequently accidents and incidents involving waste collection vehicles are frequent and therefore for the purposes of this case study, we shall look at two scenarios from the waste industry, compiled from dialogue with our customers, that illustrate the direct commercial savings that can be achieved by fitting a Banksman Radar product.

Here are the examples:

Customer A

The customer in question is a local authority who operates a fleet of domestic waste collection vehicles fitted with hydraulically driven bin lifts, to facilitate the collection of domestic waste bins from households within their catchment area.

Access is an issue due to the nature of the county's roads and manoeuvring can be problematic with daily reversing manoeuvres being unavoidable.

Consequently the frequency of reversing accidents was high and of major concern to the authority, not only in respect of the health and safety issues, but also the high cost of remedial repairs that were being generated as a result.

By fitting a **Banksman Radar** system to warn and assist the driver, a **thirty percent reduction** in the incidence of reversing accidents annually was achieved.

The following calculations illustrate and quantify these savings:

Pre installation of Banksman Radar system (2007 – 2008)

Average cost of 'reversing damage' repairs (per vehicle, per month)	= £ 200.00
Therefore, the annual cost per vehicle	= £ 2,400.00
The total for the six year life expectancy of the vehicle on fleet	= £14,400.00

Post installation of Banksman Radar system (2008 – 2009)

Average cost of 'reversing damage' repairs (per vehicle, per month)	= £ 140.00
Therefore, the annual cost per vehicle	= £ 1,680.00
The total for the six year life expectancy of the vehicle on fleet	= £10,080.00

Therefore the total saving for the life of the vehicle is = £ 4,320.00



Many other local authorities who have fitted **Banksman Radar** are telling us that the percentage reduction is much higher, with figures in the order of **fifty percent** and greater being quoted.

Customer B

The following quotation is from one of the UK's leading private waste collection companies:

"We have 1 location with on average 12 vehicles operating on a municipal contract all with Terberg omni-del lifts fitted, since September 2006 we have spent over £11000.00 on major repairs to the vehicles due to reversing incidents, these vehicles have no Banksman Radar fitted."

"We have another location that has 3 times the amount of vehicles all with Banksman Radar fitted and since September 2006 have had not had to spend any money on the vehicle's in regard to reversing damage."

"There is not a great deal different between the 2 locations, as they both operate in similar environments."

"In theory we could have spent in the region of £33000.00 on the vehicles at the larger location."

One thing that must be borne in mind is that the above examples focus on how effective our **'warning only Banksman Radar'** system can be, in dramatically reducing reversing accidents.

Also for illustrative purposes only, the case studies focus on one small aspect of the benefits of fitting a **'Banksman Radar'** system, the direct cost generated by repair to the vehicle caused by reversing accident damage. We must not forget that the vehicle has impacted with something in the first place to cause the damage and additional variable costs will need to be factored in i.e. potential legal costs and compensation to a third party.

The worst case scenario is that the accident involves injury to a human, either one of your own employees or a member of the public. We do not need to highlight the ramifications of this nature of incident.

Banksman Auto Braking is the next evolution of this highly successful safety aid. The system will warn the driver of the approaching danger and finally apply the brakes in a controlled manner, if no evasive action is taken.

Although it is almost impossible to eliminate reversing accidents, we are sure that we can come very close and in doing so help our customers to achieve improved **'Safety, Security and Savings'**.

Banksman Auto Braking Trials

Vision Techniques offers free trials and with all trials we leave a clear period of time where the operator evaluates the system in their own time, in their own environment. Of course, we are always on hand to offer advice or answer any queries but it is important for the customer to gain an appreciation of our systems in their own right.



Customer base

There are currently over 5000 on road and off road vehicles fitted with the '**Banksman**' family of intelligent, programmable radar systems in the United Kingdom and our customer base covers the length and breadth of the country and continues to grow at an increasing rate on a year on year basis.

Key features

- Robust and durable – even when fitted to off road vehicles operating in the most arduous conditions, life expectancies well in excess of six years are common place.
- Fully tested and compliant to '**CE**' and '**E**' mark standards.
- Fully programmable – allowing parameters to be configured to meet the requirements of the individual application.
- Reads and interprets multiple vehicle **Can Bus** system messages to ensure correct and safe operation
- Data logging – the stored system log can be interrogated to provide an in depth, date/time based log of hazard detection, the responses of the system and driver reactions.
- 'One shot' system override facility to allow the driver to decide to take control if required for tight manouvering situations.

In summary, the **Vision Techniques 'Banksman Auto Braking'** radar system represents a significant advance to address reversing safety issues, at the same time providing solutions to protect personnel, assets and reduce operating budgets.

If you would like to learn more about any of our '**Banksman Radar**' product line, our contact details and further information can be found on our web site at: www.vision-techniques.com

