



Lucie
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SUBMISSION NO. 492

22 August 2003

Mr Gary Nairn MP
Committee Chair
House Select Committee on the recent Australian bushfires
Department of the House of Representatives
Parliament House
CANBERRA ACT 2600

Dear Mr Nairn

RE: AUSTRALIAN BUSHFIRE INQUIRY

Like so many Australians, I have read with interest news about the work of the House Select Committee on the recent Australian bushfires. I would like to congratulate the Commonwealth Government for its initiative in establishing this important committee.

As you are aware, a constant theme in Australian bushfire fighting over the years has been the tragic deaths of firefighters. A number of these firefighters were killed in their firetrucks as they sought protection from the heat and flames. The development of new technologies, means it is now possible to construct crew survival cabins in firetrucks. Therefore, the Commonwealth Government is in a position to play a leadership role in the introduction of national standards for the design and production of firefighting vehicles incorporating crew survival cabins.

A firefighting vehicle equipped with a crew survival cabin is already a reality. ADI's FireKing firetruck, a variant of the Bushmaster vehicle we are producing for the Australian Army, has been tested by the CSIRO to withstand a temperature of 1,000 degrees C during a simulated flashover fire. During the CSIRO testing, the internal cabin temperature of the FireKing rose by only 20 degrees to 37 degrees C. ADI has recently signed a contract to supply FireKing vehicles to ForestrySA of South Australia.

Please find attached ADI's submission calling for the introduction of a national standard for the production of Australian firefighting vehicles equipped with a crew survival cabin. Included in the submission is a video and visuals of the CSIRO testing of FireKing.

Yours sincerely



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SUBMISSION TO THE HOUSE SELECT COMMITTEE ON THE RECENT AUSTRALIAN BUSHFIRES

Summary of Submission

This submission by ADI Limited responds to the Inquiry's first Term of Reference---that the Select Committee identifies measures that can be implemented to minimise the incidence and the impact of bushfires on life, property and the environment.

ADI submits that one measure that would help minimise loss of life from bushfires would be a national standard for bushfire fighting vehicles.

This submission is based on ADI's experience as the designer and manufacturer of the FireKing, the world's only firefighting vehicle with a crew survival cabin. ForestrySA of South Australia purchased 15 FireKings in May 2003 and ADI is now marketing the vehicle both nationally and internationally.

Unlike the firefighting vehicles currently used by bushfire authorities across Australia, the FireKing is a purpose built vehicle. All other bushfire fighting vehicles in this country are variations on a commercial cab chassis platform. They do not provide the level of crew survivability and inherent protection that can be achieved with the type of technology ADI has incorporated into FireKing.

Traditional fire fighting vehicles are based on commercially available cab chassis and are built in relatively small numbers and to a price. These vehicles have inherent design limitations including extensive use of plastic and flammable materials, open underbodies with exposed components such as fuel tanks, brakelines and electrical systems. All are vulnerable to damage if exposed to radiant heat or flame and can render the vehicle immobile.

The vehicle cabins have a range of flammable materials in seats, head linings, door seals, noise insulation materials all of which are untried and tested for toxic fumes and flammability. Externally, commercial cab chassis have flammable material applied as cosmetic stylist coverage over a metal body skin less than one millimeter thick. The laminated windscreens are either bonded (stuck) or rubber mounted into position which has minimal capability to withstand fire and radiant. Furthermore, door seals are unprotected. The glass has minimal capability to sustain elevated temperatures and direct flame contact.

FireKing has been successfully tested and is made from a specially designed, fully enclosed steel body. Five mm thick insulation has been applied to all sides of the vehicle cabin and high temperature glass applied to all window positions enabling them to withstand a continuous 1000 deg C. There are also high temperature seals on all windows and doors. The vehicle body has no exposed underbody components due to its monoquocce construction. The fuel and hydraulic tanks are shielded and insulated within the vehicle body. The use of plastic or flammable materials either internally or externally has been minimised wherever possible.

The vehicle fire fighting equipment utilises the vehicle's engine as the source of pumping power through a hydraulic drive system. The vehicle's water tank is made from phenolic resin and is divided into two sections - one as a main tank, the other as an emergency tank. The tank filling mechanism ensures the emergency tank always fills first.

CSIRO testing has demonstrated FireKing's ability to withstand temperature peaks of up to 1000 deg C. During this testing, the internal cabin temperature rose by only 20 deg.C. The vehicle's cabin, constructed from materials highly resistant to heat, flame and toxic fumes, will save the lives of firefighters caught in the worst of bushfires and can be driven through such fires to safety if required.

ADI believes Australia should have a national standard for vehicles which firefighters depend on for their lives when caught in bushfires.

ADI & the FireKing

ADI is a major Australian defence and technology company employing 2,500 people. The company is highly experienced in the design and manufacture of military and specialist vehicles. ADI military vehicles are in service with the Australian Army and ADI has produced the only Australian designed and manufactured military vehicle to be purchased in volume by the US Army. The company's specialist armoured vehicles include "cash in transit" vans for the security industry and prison transportation and perimeter patrol vans.

It is this experience that has made the company one of a handful in the world with the knowledge to develop a vehicle with the highest level of fire protection. FireKing's platform is a variant of ADI's Bushmaster infantry mobility vehicle which offers unrivalled protection from mine blasts.

FireKing can be used in a range of firefighting roles including a command or first strike vehicle that reconnoitres a bushfire situation then coordinates the safe deployment of personnel and resources. In an unpredictable weather shift, its four wheel drive manoeuvrability, structural rigidity, 100km/h speed, water capacity and safety systems provide the necessary protection to save lives.

FireKing's design minimises heat transfer by the utilisation of appropriate building materials. Potential vehicle fuel sources are limited through fundamental material selection which minimises the chance of the exterior melting or burning while providing optimum weather and radiant heat sealing of doors and windows.

ADI is investigating using the technology developed for FireKing's crew survival cabin to retrofit existing commercial vehicles and provide them with improved levels of safety.

While wheel water sprays provide protection for tyres and wheels, the underbody is entirely enclosed, protecting all vehicle critical systems. The vehicle, which can accommodate four crew, has a 3000 litre main water tank of dedicated fire fighting water plus a 700 litre reserve tank for vehicle protection. Foam system options are also available.

ADI sees FireKing as a vehicle that complements existing fire fighting fleets, not replace them.