

Forecast of Emerging Technology in the Automotive 4WD Transmissions Market Until 2010

Research and Markets ([\[CAMPAIGNLINK\]](#)) has announced the addition of *Automotive 4WD Transmissions: Technology, Markets, Suppliers and Manufacturers* – Forecasts to 2010, 2004 Edition to their offering

([PRWEB](#)) November 12, 2004 -- While a four-wheeled motor vehicle will perform perfectly well for most purposes so long as two of its wheels are driven, traction is much improved when all four wheels are driven. This improved traction allows poor terrain to be crossed more slowly and carefully, with less chance of becoming immobilised, and confers the ability to negotiate steeper gradients. Full use of these abilities calls for significant drive torque to be available at very low speed, hence 4WD vehicles for off-road use are generally provided with a step-down transfer gearbox which allows the overall gearing to be significantly lowered when necessary.

The advantages of the light-duty 4WD vehicle for off-road operation were first fully realised during the Second World War with the emergence of the Willys Jeep. The value of such vehicles for agricultural, industrial, forestry and construction industry use (as well as military) created a ready market for war-surplus vehicles and encouraged a handful of vehicle manufacturers to develop new designs more suited to civilian use. Thus the later 1940s saw the emergence of the earliest Land Rovers and more advanced civilianised Jeeps. Other interpretations of the concept emerged in the early 1950s, notably the Toyota Land Cruiser BJ of 1951 and the original Nissan Patrol of 1952.

Although developed to meet a civilian need (though often with their commercial viability enhanced by way of military orders) such models were still essentially working vehicles. It was only during the later 1960s that the concept began to emerge of a working 4WD vehicle with a sufficient degree of civilisation to appeal to the more general consumer. This trend was accelerated in the early 1970s by the appearance of the Range Rover whose sales consistently exceeded the planned figure. By the end of the 1970s the number of models competing for this new market had risen considerably. It certainly was a new market, not least in that many of the 4WD vehicles sold into it spent little if any time off-road, except perhaps in North America where the all terrain environment is easier to access. In short, consumers were buying these vehicles almost entirely on the strength of their tough, aggressive appearance and some perceived but essentially fringe advantages: greater mass leading to improved survival in a collision, higher eye-line affording better driver visibility. This was the generation of 4WD models to which the term recreational vehicle (RV) was first applied. The major American manufacturers had created their own models for the RV market in the form of the Chevrolet Blazer and Tahoe (and their other GM-badged siblings), the Ford Explorer, and the Dodge Durango....

By 2004, the main world markets had long since arrived in a situation where all retail vehicle buyers were aware of 4WD, mainly through the consistently strong growth in sales of vehicles ostensibly intended for off-road operation - the so-called recreational vehicles (RVs) and sport-utility vehicles (SUVs). Consequently, the market for 4WD transmission systems had also grown, not only in size but also in variety and in the sophistication of its more advanced technologies.

This report sets out to deal with aspects of the 4WD transmission market and technology, downstream of the main gearbox (manual or automatic). It therefore concentrates on the centre differential, final drives, propeller



shafts and associated components.

Chapter 1 of the report examines the historic background leading to the growth of the "consumer" 4WD market in particular, and goes on to establish the basic requirements for any 4WD transmission system for a light-duty vehicle. Chapter 2 discusses the basic technology of 4WD - the technologies applicable to all of these categories except the electric hybrid - while Chapter 3 considers the various devices now used, or available, to achieve a higher degree of control. It also provides an overview on the electric hybrid 4WD concept. Chapter 4 surveys the major specialists in the 4WD transmissions area, while Chapter 5 briefly surveys currently available vehicle ranges, manufacturer by manufacturer.

The report is delivered to you electronically, and also includes the following data tables:

World Vehicle Production by Area (000s) with 4WD Shares and Volumes, 2000 to 2010 for Asia, NAFTA and EU

4WD system production volumes (000s) by category ("basic", "sophisticated", "fully active", "road-going", and "electric hybrid") 2000 to 2010

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