

2.

VEHICLES

the good,
the bad and the ugly

Choosing a vehicle for a specialist application such as off-road driving without knowledge of the subject is a risky business. The trouble is that modern off-roaders have dual personalities. They are required to cruise economically and comfortably and when the road ends these same vehicles are asked to climb hills that mountain goats balk at. Armed with insight into how vehicles are designed to cope with these demands and how they work off-road will be of significant advantage to the buyer. So before making a selection, I suggest you read the first chapter and decide on what sort of vehicle you want.

In this chapter, vehicles are arranged in categories:

1. Lightweights. These vehicles range between two-seater open-top true off-roaders such as the Jeep Wrangler to four-wheel drive street-wise trendy runabouts like the Honda CRV. Some short-wheelbase variants of leisure station wagons are included here.

2. Workhorses and pick-ups. These vehicles range between light truck workhorses such as the Land Rover Defender to single and double-cab pick-ups such as the Hilux.

3. Leisure station wagons. These vehicles range between basic station wagon off-roaders like the Nissan Sani, through the luxury wagons like the Pajero, all the way to 4x4 limousines like the Cruiser VX and Range Rover.

4. Specialist and unusual vehicles.

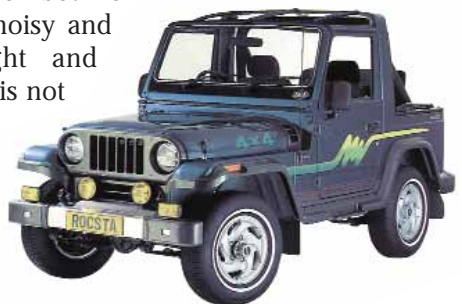
Comments are derived from my own experience and from the many off-road enthusiasts out there whose opinions I value.

1. LIGHTWEIGHTS

In this section, Asia Rocsta, Diahatsu Rocky and Terios, Honda CRV, Jeep CJ and Wrangler, Kia Sportage, Lada Niva, Land Rover Freelander, Mahindra Jeep, Mitsubishi Pajero SWB, Nissan Terrano, SsangYong Korando, Suzuki SJ and Samurai, Suzuki Vitara and Grand Vitara, SVM Mohican and Toyota RAV4.

ASIA ROCSTA

The Asia Rocsta is a CJ Jeep look-alike with basic features and dated technology. The makers use slogans like 'dirt cheap' and 'The most fun you can have with your top off' when describing their vehicle which gives you some idea of the position in the market. Performance is reminiscent of both of these vehicles - when on road, noisy and slow and when off-road, light and manoeuvrable. Ground clearance is not as good as one would expect for this type of vehicle. Spare parts are hard to find anywhere but in major centres.



DAIHATSU ROCKY and TERIOS

The Rocky is a Japanese lightweight Jeep style vehicle powered by a turbo diesel 4-cylinder 2.7-litre engine and is fitted with independent front double wishbone suspension and solid axle and coil springs at the back. The Terios is an altogether different vehicle; curvaceous and stylish, it tackles the Freelander, RAV4 and Grand Vitara market although it is considerably smaller than all of these. It has full time four-wheel drive with a lockable centre differential but no transfer gearing.



HONDA CRV

Honda's good-looking lightweight leisure four-wheel drive is unsuited to true off-road travel in every sense - poor clearance, no low gearing and a four-wheel drive system that powers the second set of driving wheels only when they are needed. The system drives the front wheels and when it senses wheel spin the rear drive is engaged. When traction is regained the rear axle then disengages, leaving the vehicle in two-wheel drive until traction is needed again, when the process starts over. As a road cruiser the



ASIA ROCSTA

ENGINE

Fuel	petrol	diesel
Cylinders/Configuration/cm ³	4 in-line/1789	4 in-line/2184
Max. power kW at RPM	63 @ 5500	53 @ 4250
Max. torque N.m at RPM	137 @ 3000	145 @ 2000

TRANSMISSION

Type: Manual 5-speed. Part time four-wheel drive and two-ratio transfer gearbox.

Differential lock/s none

SUSPENSION

Front and rear: Solid axle on leaf springs and shocks absorbers

DIMENSIONS

Wheelbase (mm)	2132
Ground clearance (mm)	205
Fuel tank capacity	62
Mass (kg)	1280
Tyres	215/75 R15
Std. body suitable for high lift jack	yes

CRV performs very well with a smooth, quiet and economical cruise. It is roomy and carries a load well. In this sphere it is equal, if not superior to its main competitors, the Freelander and RAV4.

DAIHATSU ROCKY AND TERIOS		
ENGINE	ROCKY	TERIOS
Fuel	diesel	petrol
Cylinders/Configuration/cm ³	4 in-line/2765	4 in-line/1296
Max. power kW at RPM	75 @ 3400	61 @ 6100
Max. torque N.m at RPM	245 @ 1900	105 @ 5100
TRANSMISSION		
Rocky: Manual 5-speed, part-time four-wheel drive and two-ratio transfer gearbox.		
Terios: Manual 5-speed, full-time four-wheel drive. No low transfer gearing.		
Differential lock/s	none	centre
SUSPENSION ROCKY		
Front: Double wishbone independent torsion bar and shocks absorbers		
Rear: Solid axle on coil springs and shocks absorbers		
SUSPENSION TERIOS		
Front: Double wishbone independent torsion bar and shocks absorbers		
Rear: Solid axle on coil springs and shocks absorbers		
DIMENSIONS		
Wheelbase (mm)	2530	2420
Ground clearance (mm)	210	185
Fuel tank capacity	60	46
Mass (kg)	1660	1040
Tyres	215 R15	205/70 R15
Std. body suitable for high lift jack	no	

HONDA CRV	
ENGINE	
Fuel	petrol
Cylinders/Configuration/cm ³	4 in-line/1973
Max. power (DIN) kW at RPM	110 @ 5500
Max. torque (DIN) N.m at RPM	182 @ 4200
TRANSMISSION	
Type: 5-Speed manual or 4-speed auto full-time four-wheel drive. No transfer gearing.	
Differential locks:	none
SUSPENSION	
Front and rear: Independent double wishbone and coil springs. Anti-roll bar at rear.	
DIMENSIONS	
Wheelbase (mm)	2620
Ground clearance (mm)	205
Fuel tank capacity (litres)	58
Mass Tare	1390
Tyres	205/70 R15
Std body suitable for high lift jack	no

JEEP CJ

The first mass produced light all-purpose 4WD was the American World War II Jeep. At the outbreak of the war, the US Army required a 'Light Command and Reconnaissance Car' for use in the conflict. Four-wheel drive was a design priority and the American Bantam company soon had a prototype being tested by the US Army. Unfortunately for American Bantam, they could not cope with the volume of production that was required, so a number of other manufacturers were called in to evaluate the Bantam.

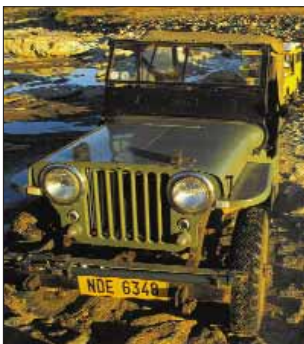
Both Ford and Willys-Overland took up the challenge and built their own versions to be assessed. Ford called their new vehicle the Pygmy or alternatively the Ford model GP, short for 'General Purpose'. Willys-Overland called theirs the Jeep, the name coming from a character in the Popeye cartoon series called Eugene - a little 4WD that could do virtually anything. So the 'Jeep' was born.

The final vehicle was a combination of the best of all three designs and built by all three manufacturers. Over 638 000 were built before the end of the war and after it Willys-Overland continued building light 4x4s, and the 'Civilian Jeep', the Jeep CJ series, came into being.

Both the Toyota Land Cruiser's and Land Rover's original design principles can be traced to the Second World War Willys Jeep.



The 'civilian Jeep' or CJ series was first offered as a military machine with minor modifications to suit the civilian market. The CJ2 was the first, and early models are rare collectors' items. The second model, the CJ3, with raised bonnet to accommodate the new powerplant, was first made in 1952. This machine is still made in India and is called the Mahindra, although with a different engine. All CJ Jeeps are excellent off-road machines, the CJ2 and CJ3 being the most favoured by the Jeep fanatics. No CJ is ideal for long distance cruising, being noisy and rather uncomfortable. Suspension is by solid axles and leaf springs. Depending on the model, they are available in part time or permanent four-wheel drive. Once built in South Africa by Volkswagen SA, there are quite a number of second-hand units available. New models are called Wrangler and come with either a 2,5-litre 4-cylinder or 4-litre 6-cylinder engine. The reintroduction into South Africa of Chrysler



*From left to right: CJ2, CJ3 and CJ6.
Top: Jeep's current 'CJ', the Wrangler 4.0.*

products has added well known brand names onto trails, among them the Jeep Cherokee and the Grand Cherokee station wagons and the classic-styled Jeep Wrangler which has a fair on-road and good off-road performance, although it does not match that of the early CJs off-road.

JEEP CJ			
	CJ 5	CJ 7	Wrangler 4.0
ENGINE			
Fuel	petrol	petrol	petrol
Cylinders/Configuration/cm ³	4 in-line/2500	6 in-line/4200	6 in-line/3965
Max. power (DIN) kW at RPM	64 @ 4200	81 @ 3500	130 @ 4600
Max. torque (DIN) N.m at RPM	128 @ 2800	104 @ 3200	290 @ 3600
TRANSMISSION			
Type: Manual 4-speed manual. Part time 4wdrive. CJ7 and Wrangler has 5-speed manual and permanent 'Quadra-Trac' 4x4 system.			
Differential lock/s: Centre lock with Quadra-Trac, others none			
SUSPENSION			
CJ: Front and rear live axles, semi-elliptic leaf springs and shock absorbers.			
Wrangler: Front and rear live axles, coil springs and shock absorbers.			
DIMENSIONS			
Wheelbase (mm)	2120	2362	2373
Clearance (mm)	n/a	n/a	203
Approach angle	32°	32°	42.5°
Departure angle	31°	31°	30.3°
Breakover angle	n/a	n/a	154°
Tyres front	6L X 15 inch	H 78 X 15 inch	205/75 R15
Tyres rear	6L X 15 inch	H 78 X 15 inch	205/75 R15
Body suitable for high lift jack	yes	yes	no

KIA SPORTAGE	
ENGINE	
Fuel	petrol
Cylinders/Configuration/cm ³	4 in-line/1998
Max. power (DIN) kW at RPM	94 @ 5300
Max. torque (DIN) N.m at RPM	175 @ 4700
TRANSMISSION	
Type: 5-Speed manual part time four-wheel drive with two-ratio transfer gearbox and auto free wheel front hubs	
Differential locks:	none
SUSPENSION	
Front: Independent double wishbone and coil springs.	
Rear: Live axle, coil springs four bar link.	
DIMENSIONS	
Wheelbase (mm)	2650
Ground clearance (mm)	216
Approach angle (degrees)	36
Departure angle (degrees)	33
Break-over angle (degrees)	21
Fuel tank capacity (litres)	60
Mass Tare	1928
Tyres	205/75 R15
Std body suitable for high lift jack	no

KIA SPORTAGE

Another Korean lightweight, introduced in the mid nineties, the Sportage has had a number of local distributors, the current being Kia Motors, South Africa. The Kia is a small engined vehicle challenging the Suzuki Vitara market. It has part-time 4x4 and low-range gearing. Ground clearance is not suitable for a true off-roader but the Sportage is light, manoeuvrable and similar in off-road performance to the Vitara. Approach and departure angles are among the best in its class.



LADA NIVA

The Lada Niva is built by AutoVAZ, 900 kilometres south of Moscow at Togliatti, a giant vehicle plant employing more than 130 000 people and turning out over 2000 units each day. Currently the factory exports over 140 000 vehicles every year and of these, 60% are Lada Nivas. No other Soviet vehicle has found the following that this unimpressive vehicle has and it is testament to the strength of the four-wheel drive market throughout the world that the only widely exported Soviet passenger car should be a four-wheel drive.

When looking closely at the Lada, it should only be compared to similarly-priced vehicles, although it is the only station wagon in its price range. When this is done the Lada is great. It is very mobile, highly effective off-road and better on-road than most of its competitors. Reliability problems continue to be the most serious drawback of the Niva.

The Lada has a live rear axle and independent front coil spring suspension, which has excellent articulation. Although the interior is reminiscent of a 1975 Fiat 124, suspension and transmission is of a fairly advanced design. It has permanent four-wheel drive with a lockable centre differential. Other minor changes have been made to cater for the Western market, namely improved sound-proofing, better seats, removable rear seats and an improved tailgate design allowing better loadability. Current models have a new 4-cylinder 1700cc engine. Spare parts, like many vehicles in this class, are only readily available in major urban centres.

Models available include the Standard, Safari, Cub, 5-door s/wagon, single cab and double cab bakkies. Advanced option packs include alloy wheels and sunroofs.



LAND ROVER FREELANDER

Land Rover's new toy is a fun car and, unlike other Land Rovers, cannot be regarded as an off-road vehicle. Drive to all four wheels is not enough to make an off-roader and the Freelander lacks the two ingredients that are needed to be effective off-road, namely

LADA NIVA

	Old model	Current model
ENGINE		
Fuel	petrol	petrol
Cylinders/Configuration/cm ³	4 in-line/1557	4 in-line/1690
Max. power (DIN) kW at RPM	56 @ 5400	59 @ 5200
Max. torque (DIN) N.m at RPM	135 @ 3000	127 @ 3200
TRANSMISSION		
Type: Manual 5-speed permanent four-wheel drive with lockable centre differential and two-ratio transfer gearbox.		
Differential lock/s	centre	centre
SUSPENSION		
Front: Independent dual wishbone and coil springs. Anti-roll bar.		
Rear: Live axle, coil springs four longitudinal and one transverse link.		
DIMENSIONS		
Wheelbase (mm)	2200	2200
Ground clearance (mm)	220	220
Approach angle (degrees)	40	40
Departure angle (degrees)	32	32
Ramp over angle	29	29
Fuel tank capacity	100	100
GVM (kg)	1150	1210
Payload (kg)	400	400
Tyres:	6.95 X 16	175/80/R16
Std body suitable for high lift jack	yes	yes

LAND ROVER FREELANDER

	petrol	diesel
ENGINE		
Fuel	petrol	diesel
Cylinders/Configuration/cm ³	4 in-line/1796	4 in-line/1994
Max. power (DIN) kW at RPM	88 @ 5550	71.6 @ 4200
Max. torque (DIN) N.m at RPM	165 @ 2750	210 @ 2000
TRANSMISSION		
Type: 5-Speed manual full time four-wheel drive with centre viscous coupling. No transfer gearing. Electronic hill decent control.		
Differential locks:	none	
SUSPENSION		
Front: Independent MacPherson strut, lower arms, coil springs and stabiliser.		
Rear: Independent MacPherson strut, trapezoidal link and coil springs.		
DIMENSIONS		
Wheelbase (mm)	2557	2557
Ground clearance (mm)	186	186
Approach angle (degrees)	30	30
Departure angle (degrees)	34	34
Break-over angle (degrees)	156	156
Fuel tank capacity (litres)	59	59
Mass Tare	1380	1480
Tyres	195/75 R15	195/75 R15
Internal tie-down rings	yes	yes
Std body suitable for high lift jack	no	no

high clearance and extra low gearing. To compensate for the absence of low gearing, electronic hill descent control acts on the ABS brakes to slow the vehicle on steep descents. The system works well, but what about climbs? An absence of low gearing means that the vehicle runs out of power on even moderate hill climbs and it is difficult to drive over very rough ground in a gentle and controlled manner, which is essential if the vehicle is not to be damaged. What is more serious is the Freelander's



lack of ground clearance - it is this element of the design that is a serious disappointment, and turns it into what I would describe as the first saloon car Land Rover has ever made. The one environment where the Freelander performs well is on the beach but still falls behind its closest rival, the RAV4 here. On road it is a pleasure to drive and the engine choices suit the vehicle well. Handling on corrugations is excellent, and during the week I had the Freelander on test, a speedy run on some twisty gravel roads was hard to resist. In this environment it feels like a four-wheel drive rally car. Interior appointments are typical Land Rover and exude style and the driving position and feel of the vehicle is the best part of the Freelander. There are also a few annoying features too, like a powered rear window that sucks in exhaust fumes when it is dropped and an opaque sunroof which permits the sun to roast the top of one's head on a sunny day.

MAHINDRA

Based on the CJ3 Jeep, it is built in India from Willys body panels and transmission parts mated to a Peugeot diesel or petrol engine. Some of the good points of the last true CJ3 Jeep remain, such as grease nipples on points of high stress axle and suspension areas. Bucket seats and a few niceties have been added. The Mahindra gives birth to intense boredom on the open road, managing a noisy 120kph downhill.

Challenge it to a head wind and you're down into third at 80kph. Off-road it behaves like a Jeep CJ3 and that means that it is agile and very capable.



MITSUBISHI PAJERO - SWB

Many Pajero buyers, no doubt due to excellent marketing, believe that they are buying a vehicle that has competed in and won several Paris-Dakar rallies. The fact is that what is available to the public shares no more than technology with the ‘rally proven’ space-age machine that has been so successful in this event, and only in the very early events were production Pajeros entered.

MAHINDRA		
	CL 340 SWB	MM 775 LWB
Type	XDP 4.90	P-2150
Fuel	diesel	petrol
Cylinders/Configuration/cm ³	4in-line/2112	4in-line/2150
Max. power kW at RPM	46 @ 4500	71 @ 4500
Max. torque N.m at RPM	120 @ 2000	175 @ 2750
TRANSMISSION		
Type: 4 or 5-speed manual; part-time four-wheel drive and two-ratio transfer gearbox. No free-wheel hubs.		
Differential lock/s	none	none
SUSPENSION		
Front & rear: Rigid axle on leaf springs and shock absorbers.		
DIMENSIONS		
Ground clearance (mm)	200	
Fuel tank capacity (litres)	60	
Tyres sizes front & rear	7.50/16	
Std body suitable for high lift jack	yes	

MITSUBISHI PAJERO SHORT-WHEELBASE		
ENGINE		
Fuel	petrol	diesel
Cylinders/Configuration/cm ³	3497/V6	2835/4 in-line
Max. power (DIN) kW at RPM	153 @ 5000	92 @ 4000
Max. torque (DIN) N.m at RPM	300 @ 3000	292 @ 2000
TRANSMISSION		
Type: 5-speed manual or 4-speed auto ‘super-select’(part-time and/or full time) four-wheel drive and two-ratio transfer gearbox. See text in chapter one for details.		
Differential locks:	central	central
SUSPENSION		
Front: Independent double wishbone and coil springs. Rear: Live axle, coil springs four bar link.		
DIMENSIONS		
Wheelbase (mm)	2695	2695
Ground clearance (mm)	205	205
Approach angle (degrees)	40.5	40.5
Departure angle (degrees)	n/a	n/a
Break-over angle (degrees)	n/a	n/a
Fuel tank capacity (litres)	75	75
GVM	2350	2510
Tyres	265/70 R15	
Std body suitable for high lift jack	no	

I mention this because I have had Pajero buyers read my criticisms of the vehicle and react alarmingly at my conclusions.

The Pajero SWB has few serious competitors in the pocket-sized four-wheel drive market because while it is an excellent town car it is also excellent off-road and has, through its evolution, retained the vital ingredients of a true off-roader, namely low-range gearing and generous ground clearance.

The short wheelbase Pajero is not as good as its long wheelbase brother either on-road or off. On-road it is not quite as smooth and effortless but, in this sphere, is superior to anything in its class. One thing that struck me when driving the SWB well over the speed limit on a film shoot was its outstanding stability at high speed, not something normally associated with short-wheelbase vehicles. Off-road its ride is bouncy and quite choppy and its severe lack of wheel travel on the front wheels soon becomes apparent when traversing uneven terrain. Despite this, this short-coming can easily be overcome by driving technique and the Pajero has gained a vast and devoted following. Interior, the SWB version is similar to the LWB but, with four adults, expect complaints about a severe lack of leg-room and packing space.

For further technical information read the section on the LWB versions later in this chapter.



NISSAN TERRANO

On first seeing the Terrano, particularly the short wheelbase version, one can be excused for making comparisons with the Freelander or RAV4. But this is wrong, because the Terrano is a true off-roader, not just an all-wheel drive plaything. So, comparisons should be made with the Suzuki Vitara, Kia Sportage and the Pajero SWB and the long wheelbase Terrano should be compared with the Isuzu Frontier. The Terrano matches the best of these in many respects.

The second surprise to me was the 2,7-litre turbo-diesel engine. In the Sani or Hardbody it proved sluggish, suffering from severe turbo lag. In the Terrano it is willing, punchy and easy to drive off-road. The turbo lag is just about undetectable and cruising well above the speed limit is easy, even up the steepest climbs. Noise levels are reasonable and the diesel's presence is only obtrusive when idling.

Off-road the Terrano is terrific. It has part-time four-wheel drive without axle diff lock and approach, break-over and departure angles which are excellent, particularly with the short wheelbase version. Clearance under the diff is average. Wheel travel is fair and the suspension is on the stiff side. I pushed the suspension by driving over an axle twister a little too fast and it didn't complain a bit.

The interior is pleasant without the flashy gimmicks often associated with Nissan 4x4s, and the high driving position is just right. Packing space is generous, even in the SWB version.

NISSAN TERRANO		
ENGINE		
Fuel	diesel	
Cylinders/Configuration/cm ³	4 in-line/2664	
Max. power (DIN) kW at RPM	92 @ 3600	
Max. torque (DIN) N.m at RPM	278 @ 2000	
TRANSMISSION		
Type: 5-speed manual part-time four-wheel drive and two-ratio transfer gearbox.		
Differential locks:	none	
SUSPENSION		
Front: Independent double wishbone, torsion bars and stabiliser.		
Rear: Live axle, coil springs, five bar link and stabiliser.		
DIMENSIONS	SWB	LWB
Wheelbase (mm)	n/a	n/a
Ground clearance (mm)	n/a	n/a
Approach angle (degrees)	n/a	n/a
Departure angle (degrees)	n/a	n/a
Fuel tank capacity (litres)	70	80
Mass Tare	1753	1907
Tyres	235/75 R15	235/75 R15
Std body suitable for high lift jack	no	no

SSANGYONG KORANDO			
ENGINE	230EL	320EL	602EL TDI
Fuel	petrol	petrol	diesel
Cylinders/Configuration/cm ³	4 in-line/2295	6 in-line/3199	5 in-line/2874
Max. power kW at RPM	112 @ 5300	162 @ 5500	105 @ 4000
Max. torque N.m at RPM	225 @ 4000	310 @ 3750	300 @ 2800
TRANSMISSION			
Type: 5-speed manual part-time four-wheel drive and two-ratio transfer gearbox.			
Differential locks:	none	none	none
SUSPENSION			
Front: Independent double wishbone and coil springs.			
Rear: Live axle, coil springs, four bar link.			
DIMENSIONS			
Wheelbase (mm)	2480	2480	2480
Ground clearance (mm)	195	195	195
Approach angle (degrees)	28.5	28.5	28.5
Departure angle (degrees)	35	35	35
Break-over angle (degrees)	n/a	n/a	n/a
Fuel tank capacity (litres)	72	72	72
Mass tare	1788	1830	1928
Tyres	245/75 R15	245/75 R15	245/75 R15
Std body suitable for high lift jack		no	no



SSANGYONG KORANDO

The Korando has never appealed to me because of its looks, and I rate it as the ugliest 4x4 by far.

The Korando is based on a shortened Musso chassis and, performance wise, the Korando is below average in most respects. Off-road it is not a good performer and when driven in the company of other vehicles the slightest driver misjudgment is shown up. Wheel travel is fair but clearance, especially between the front wheels is poor. The Korando petrol versions are not underpowered but its road feel is heavy and ponderous for such a small vehicle. Overall the Korando doesn't shine in any aspect.



SUZUKI SJ 410 and SJ 413 SAMURAI

The diminutive Suzuki Jeep is not considered a serious off-roader because of its small size and inability to carry the kinds of loads needed for extended trips. It is also slow and uncomfortable on the road. However, off-road it is excellent due mainly to its small size and light weight. On the beach and over dunes it will keep up with almost all 4x4s but its limitations show when asked to climb hills on uneven terrain where its lack of weight and stiff suspension hamper its ability. Early models roll over very easily, so a novice driver should be very careful as obstacles taken too fast frequently result in rolling over. When bogging down, even in the worst case, the Suzuki can be easily dug out.



*Left: SJ410.
Right: Samurai*



Suspension is by solid beam axles on leaf springs on older models and coil springs on the new. The current model is enlarged marginally and is called Samurai. It offers improved comfort and

SUZUKI SJ410 AND SAMURAI		
	SJ410	SAMURAI
ENGINE		
Fuel	petrol	petrol
Cylinders/Configuration/cm ³	4 in-line /970	4 in-line /1298
Max. power kW at RPM	33.5 @ 5500	47 @ 6000
Max. torque N.m at RPM	73.5 @ 3500	100 @ 3500
TRANSMISSION		
Type: 4-speed manual part time four-wheel drive and two-ratio transfer gearbox.		
Differential lock/s	none	none
SUSPENSION		
Front and rear: (SJ410) Solid axles of leaf springs (Samurai) Solid axles, coil springs, shock and shock absorbers, absorbers and panhard rod. Anti-roll bar at front		
DIMENSIONS		
Wheelbase (mm)	2030	2030
Ground clearance (mm)	205	205
Approach angle (degrees)	42	42
Departure angle (degrees)	38°	38°
Fuel tank capacity (litres)	40	40
Mass Tare	840	950
Mass payload (kg)	350	350
Tyres sizes front and rear	n/a	205/70 R15
Std body suitable for high lift jack	yes	yes

SUZUKI VITARA			
ENGINE			
Fuel	old petrol 1,6	new petrol 2.0	new petrol V6
Cylinders/Configuration/cm ³	4 in-line/1590	4 in-line /1995	4 in-line /2493
Max. power kW at RPM	69 @ 5200	94 @ 6000	106 @ 6200
Max. torque N.m at RPM	138 @ 4000	174 @ 2900	208 @ 3500
TRANSMISSION			
Type: Manual 4-speed part-time four-wheel drive and two-ratio transfer gearbox.			
Differential lock/s	none	none	none
SUSPENSION			
Front: Independent MacPherson struts and coil springs.			
Rear: Solid axles, 5-links, coil springs and shock absorbers.			
DIMENSIONS			
Wheelbase (mm)	2030	2480	2480
Ground clearance (mm)	205	195	195
Approach angle (degrees)	40	34	34
Departure angle (degrees)	33	31	31
Fuel tank capacity (litres)	55	66	66
Mass Tare	840	1355	1405
Mass payload (kg)	350	500	500
Tyres sizes front and rear	195/80 R15	235/60 R16	235/60 R16
Std body suitable for high lift jack		no	no

better features with its coil spring suspension and a wider track, making it more stable. The long wheelbase models are better working machines and are popular with aid organisations operating in Central Africa but are unfortunately not readily available in Southern Africa.

SUZUKI VITARA AND GRAND VITARA

Suzuki's other, more upmarket lightweight is the Vitara. Unlike many vehicles often compared to it, the Vitara has a low-range gearbox and thus equips the vehicle with one of the two chief ingredients for an off-roader. It does, however, suffer from a lack of clearance and this is the design's downfall. Despite this, and its road tyres and feminine looks, it is surprisingly agile off-road and has even been used for difficult long distance trips into Botswana by some who are more daring than I. Its on-road comfort is similar to a small saloon but its off-road ability is paid for by its high speed handling which is vague at speeds over 100kph and scary in a cross wind. The new Grand Vitara's ride is improved over the early models. It comes with features such as air conditioning and electrical adjustment for the exterior mirrors and with a choice of engines; a 2-litre V6 and a multi-valve 1,6-litre four-cylinder.



SVM MOHICAN

The SVM (Special Vehicle Manufacturers) Mohican is a 2-seater Jeep CJ style vehicle which is fairly crude in design but nevertheless, tough and an outstanding off-roader. The SVM is a little overpowered and controlling this power takes some getting used to off-road. There are no frills or gimmicks and the entire package is about as basic as you can get in terms of comfort. Consequently it is not a vehicle in which I would enjoy an extended overland trip. The SVM is designed and built in South Africa, it is light, very manoeuvrable and has performed very well in competitive off-road events.

Suspension is by leaf springs that allow better-than-average vertical movement on a galvanised box section chassis. The body is glass fibre with steel reinforcing. The engine is a Ford 3-litre V6, and the 5-speed dual-transfer gearbox is a Borg Warner and the rear diff is lockable. While researching this book I was unable to locate a single dealer so may only be available secondhand.



FRANCOIS ROSSOUW

TOYOTA RAV4

Although the RAV4 does not have low gearing, it has reasonable clearance, excellent wheel travel and is a brilliant off-roader in the hands of an experienced driver. However it is not designed for serious off-road work and, as a result, there are a small number of RAV4 owners who are disappointed with their vehicles because they have loaded them heavily and taken long distance, arduous off-road excursions. The designers never intended the RAV4 to be used in

SVM 3000 MOHICAN	
ENGINE	
Fuel	petrol
Cylinders/Configuration/cm ³	V 6/2993
Max. power kW at RPM	110 @ 5000
Max. torque N.m at RPM	237 @ 3000
TRANSMISSION	
Type:: manual 5-speed part-time four-wheel drive and two-ratio transfer gearbox.	
Differential lock/s	rear axle
SUSPENSION	
Front and rear: Leaf springs, adjustable shock absorbers and solid axle.	
DIMENSIONS	
Wheelbase (mm)	2030
Approach angle	55°
Departure angle	50°
Ground clearance (flat) (mm)	260
Fuel tank capacity (litres)	65
GVM (kg)	1240
Tyres sizes front and rear	31 X 10.5 or 15 LT
Std body suitable for high lift jack	yes

TOYOTA RAV4		
ENGINE		
Fuel	petrol	
Cylinders/Configuration/cm ³	4 in-line/1998	
Max. power (DIN) kW at RPM	94 @ 5400	
Max. torque (DIN) N.m at RPM	179 @ 4400	
TRANSMISSION		
Type: 5-spd manual full time four-wheel drive with centre differential, limited rear diff . No transfer gearing.		
Differential locks:	centre.	
DIMENSIONS		
	3-DOOR	5-DOOR
Wheelbase (mm)	2200	2410
Ground clearance (flat) (mm)	205	205
Approach angle	36°	36°
Departure angle	42°	30°
Fuel tank capacity (litres)	58	58
Mass Tare	1565	1710
Tyres	215/70R16	215/70R16
Std. body suitable for high lift jack	no	no



this way, as it has relatively light-duty suspension and transmission. The RAV4 is perfectly suited to beach and dune driving where driving is done in the normal range of gear ratios. If you are looking for a vehicle for pure dune driving, the RAV4 beats just about every vehicle listed in this book! The RAV4 comes in two body styles - three and five door versions. The only changes to the original design was a cosmetic upgrade which took place in mid-1998.

2. WORKHORSES AND PICK-UPS

In this section: Ford Courier, Isuzu KB, Land Rover Defender, Mazda B-series, Mitsubishi Colt, Nissan Hardbody, Toyota Hilux, Toyota Land Cruiser Pickup.

FORD COURIER

Although many vehicles in this class were once engineering transformations from two-wheel drive pick-ups to four-wheel drive off-landers, these vehicles have progressed beyond just a 2x4 conversion. Engines have improved, comfort options increased and suspension systems have been refined to cope with the dual lifestyle of leisure vehicles. The Ford Courier range is not a particularly popular 4x4 when compared to its closest rivals the Isuzu and Nissan pick-ups. Typical of this class of vehicle, ground clearance is limited, especially with regard to the departure angle with additional equipment such as bull bars and towing apparatus often making things worse.

The V6 engine has been refined over the years but I imagine Ford has had just about as much life as they are going to get out of this old design. The new generation diesel engine is brilliant, easy to drive in rough conditions and excellent on the open road. For technical specifications see Mazda B-series.



ISUZU KB

Isuzu's initial foray into the South African 4x4 world was in March 1972 with a 2-litre petrol bakkie badged 'Chev LUV'. The 4x4 derivative came seven years later together with the name change to Isuzu KB series. By now a 1,9-litre diesel engine had been



Above: The previous KB double-cab was for a time called the Reef and Frontier.

included in the range which was available in the 4x4 chassis by July 1979. In March 1984 engine evolution placed a 2,3-litre engine in the 4x4. The range was still going strong until March 1987 when the entire range was given a

face-lift and the 4x4 KB was available in 2,3-litre petrol and 2,5-litre diesel engine, both models being single cab layouts. In March 1993 the trend-setting 2,8-litre direct injection turbo-diesel and 2,6-litre petrol engines were introduced together with a double-cab body. At last the Isuzu KB was suitable for the leisure market. For a while the top-spec model was called Reef and Frontier, (before the Frontier station wagon was introduced in 1998) a double-cab offered with both engine options. A third 4x4 variant is the 250D, a 2,5-litre normally-aspirated diesel engine in a single cab.

The Isuzu KB has evolved into a respectable off-roader against stiff competition from Nissan, Samcor and Mercedes Benz (Colt), manufacturers of competing front independent and rear leaf spring suspension pick-ups. Now it must compete directly with the new

ISUZU KB			
	KB 230	LE KB260	KB280 DT
ENGINE			
Fuel	petrol	petrol	diesel
Cylinders/Configuration/cm ³	4 in-line/2109	4 in-line/2559	4 in-line/2771
Max. power (DIN) Kw at RPM	70 @ 4600	80 @ 4600	74 @ 3600
Max. torque (DIN) N.m at RPM	170 @ 2600	205 @ 3000	230 @ 2200
for specs on V6 engine see Isuzu Frontier			
TRANSMISSION			
Type: Manual 5-speed part time four-wheel drive with free-wheel hubs and two-ratio transfer gearbox.			
Differential lock/s	none	rear	rear
SUSPENSION			
Front: Independent double wish bones, torsion bars, stabiliser and gas shock absorbers.			
Rear: Rigid axle, leaf springs and gas shock absorbers.			
DIMENSIONS			
	single cab	double cab	double cab
Wheelbase (mm)	1425	3025	3025
Ground clearance (mm)	200	210	210
Fuel tank capacity (litres)	92	83	83
Mass payload (kg)	680	1114	1725
Tyres	215 SR 15	245/75 R15C	245/75 R15C
Std. body suitable for h-lift jack	no	no	no



Toyota Hilux. If you are looking for a diesel-engined double cab then the Isuzu KB280 turbo-diesel is still the best in its class.

A rear differential locking mechanism, now becoming standard on many pick-ups, upgrades the Isuzu to an effective off-roader. The petrol 2.6-litre engine is a good engine but nothing special, and some report thirstier than some of the competition. However, the turbo-diesel engine is superb - it gives ample power on the open road when carrying a load, excellent low-down torque and a free-revving nature, making it an excellent performer off-road. Lack of ground clearance is the Isuzu's biggest drawback and the standard towing attachment snags on obstacles. Late Frontier models, released before the rounded body shape was introduced, feature an aluminium bull bar, sump guard and a rear diff lock. The changes in the new models are largely cosmetic, excluding the V6, which is quieter, more powerful and a better cruise vehicle. The diesel-turbo-engine is still my favourite, and for a working 4x4 it is the better choice.

LAND ROVER

The concept of a light, dual purpose workhorse crossed the Atlantic in 1946 when the British Rover Company developed the Land Rover. Its designer, Maurice Wilks, then chairman of the Rover Company, was using an ex-military Jeep for work on his farm. He conceived the idea of a British equivalent - so the imperishable story of the "Landy" was born. The original Land Rover was announced in April 1948 and was remarkably like the Jeep. Fifty years later Land Rover Ltd is the world's only vehicle manufacturer building nothing but four-wheel drive vehicles.

What made the Land Rover unique among its competitors was its ability to accept power take-offs for driving agricultural equipment such as pumps, saws and winches, and it was marketed as a light-weight tractor that could also carry passengers. Its body was made of Birmabright (developed in Birmingham England) aluminium as a means of overcoming the government's steel rationing and as an aid in production as it could be hand-shaped, obviating the need for new machine presses. To save time the prototype was built on a Jeep chassis and had its steering wheel located in the

middle. The idea of this was that farmers familiar with tractors would immediately be at home behind the wheel and there would be no need for right-hand-drive and left-hand-drive versions.

This idea was soon dropped and the production vehicle had a standard layout and an all-new welded box section steel chassis was made for it. Listed among the first model's optional extras were doors, side screens, weather protection, a passenger seat, cushions, a heater, a starting handle and the tyre for the standard spare wheel.

Land Rover's design, being simple and easy to maintain, gave it the potential for world-wide use, and complied with the British government's post-war stipulation that new projects should be geared for export. It is ironic that the Land Rover idea was originally a stop gap to keep the Rover company busy until steel was available to produce more of the luxury sedans for which it was famous. Thirty years later it was the only part of British Leyland that was turning a profit.

By the end of 1949, 8000 Land Rovers had been delivered. After exports had begun, in parts of Southern Africa it was named the 'Gary' and steadily grew in popularity. These vehicles, known as the 'Series One', continued to be manufactured until 1958, with the only changes being to the engine and transmission. In 1950 the transmission was changed from its original permanent 4WD system which had a free-wheel inserted between the front propeller shaft and the transfer box to overcome the windup when driven on a

COMPARISON CHART

1948 - 1953; THE FIRST JEEP, LAND ROVER & TOYOTA LAND CRUISER

	US JEEP	LAND ROVER	TOYOTA
ENGINE			
Capacity	2199cc	1595 cc	3386 cc
Cylinders	4	4	6
Configuration	in-line	in-line	in-line
Bhp	60 @ 3600 rpm	50 @ 4000 rpm	85 @ 2300 rpm
TRANSMISSION			
Main gearbox	3 speed manual	3 speed manual	4 speed manual
Four-wheel drive	Selectable	Permanent	Selectable
Transfer box ratio	1.97:1	2.52:1	No transfer gearing
Final drive	4.88:1	4.88:1	Figure not available
CHASSIS			
	Pressed steel channel	Steel box section	Pressed steel channel
SUSPENSION			
Axles	Live	Live	Live
Springs	Semi elliptic	Semi elliptic	Semi elliptic
Shock absorbers	Telescopic	Telescopic	Telescopic
DIMENSIONS			
Wheelbase	80 inches	80 inches	90 inches
Track front	48 inches	50 inches	54 inches
Track rear	48 inches	50 inches	53 inches
Length	133 inches	132 inches	151 inches
Width	62 inches	60 inches	65 inches
Weight	2315 lbs	2520 lbs	Figure not available



sealed surface. The new system was truly selectable, allowing the driver to engage the front propshaft at will. This system continued until 1983 with the release of the full-time 4WD system in the newly developed Land Rover 110.

In 1954 the first change was made to the chassis. Still designated the Series-1, the new wheelbase was 86 inches (increased from the original 80 inches). The overall length increased from 11ft to 11ft 8.7 inches and the vehicle was 2.6 inches wider. The unladen weight had increased by over 200 lbs. 1954 also saw the introduction of the first long wheelbase version, its wheelbase measuring 107 inches. With 41 inches of additional load space and vastly increased payload it would keep the peace with the sales department. In less than four years this wheelbase was extended by 2 inches, from 107 to 109 inches, in order to allow the fitting of the first engine alternative - a diesel unit producing 51 bhp at 3500 rpm and a torque of 87lb/ft at 2000 rpm.

This option added 195lbs to the curb weight. The short wheelbase vehicles also undertook a chassis change for the same reason - the 86 inch wheelbase became 88 inches.

In 1957, nine years after it was launched, management decided that the Land Rover should be thoroughly reappraised and, owing to increasing pressure from the sales force, major improvements be made. The results appeared in April of 1958 and came in the form of the Series-2. Still very much a Land Rover, the changes in appearance were obvious. The front wings and body sides were slightly curved and the bonnet had a somewhat subtle shape change. The chassis frame and exhaust, once visible from the side, were hidden by adding additional bodywork below the side panels and doors.

For the first time, concessions were made to driver comfort: easier operating pendant pedals, sprung seats, glass side door windows instead of perspex and, on the 109 inch version, an adjustable driver's seat. Even a carpet covering the transmission hump between the two front seats was offered as an optional extra.

At this time the chassis layouts stabilised with the long wheelbases measuring 109 inches and the short 88 inches, which stayed

this way until 1984. With the Series Two the track was increased by 1.5 inches and the rear springs were hung from the side of the chassis rail instead of directly beneath it. This gave an extra two inches of vertical wheel travel. Perhaps the most important mechanical improvement was to the engine line up. A new over-head valve 2.286 cc petrol engine was offered, although a few early Series Two 109" machines still had the older 1.997 cc engine fitted.

During 10 years of Land Rover production the engine power had risen by 40% and engine torque, so important to a working four-wheel drive, had increased by 50%. The price had increased too - by 40%. In the first year of production, 28 000 Series-2 machines were produced. Just 17 years after it was first produced the half millionth Land Rover was built. Only two years after the Series-2 was announced, vehicles with minor suspension refinements, known as the Series-2A were in the showrooms.

After the Land Rover 109-inch Forward Control came a military derivative in the form of the 101-inch wheelbase Forward Control light troop carrier. These vehicles have become collectors' items and are outstanding in off-road terrain. They are powered by the Rover 3500 V8 with Range Rover transmission components and solid axles on leaf springs. They are noisy and uncomfortable on the road but very versatile for the serious outback adventurer as the chassis layout offers enormous versatility for the fitting of additional fuel and water tanks, spare wheels, stoves, beds and all manner of other safari equipment.

LAND ROVER SERIES-3 AND POST -1966 FORWARD CONTROL			
	88" SWB 4 -cyl.	109" LWB	6 -cyl F/Control
ENGINE			
Fuel	diesel	petrol	petrol
Cylinders/Configuration/cm ³	4 in-line/2286	6 in-line/2625	6 in-line/2625
Max. power (DIN) kW at RPM	26.8 @ 3000	64 @ 4200	64 @ 4200
Max. torque (DIN) N.m at RPM	n/a	179 @ 2000	179 @ 2000
TRANSMISSION			
Type: manual 4-speed part time four-wheel drive with two-ratio transfer gearbox.			
Free-wheel front hubs not standard.			
Overdrive unit available to improve top-end gearing. Fairy and Superwinch make them.			
Differential lock/s	none	none	none
SUSPENSION			
Front and Rear: Solid axle leaf springs and shock absorbers. Anti-roll bar on F/Control			
DIMENSIONS			
Wheelbase (mm)	2235.2 (88")	2768.6 (109")	2794 (110")
Ground clearance (mm)	209	209	254
Fuel tank capacity (litres)	45	45	200
Vehicle weight	1402.8	1626	2900
Mass payload (kg)	680	1114	1725
Tyres	7.50 X 16	7.50 X 16	9.0 X 16
Std body suitable for hi-lift jack	yes	yes	yes



Old Land Rovers are still being used as workhorses all over the Third World. This is a 1957 Series-2a in a bit of trouble. Two Range Rovers, both also over twenty years old, help it get off a sand track in Southern Botswana.

In 1967 a six cylinder engine, originally fitted to the Rover 95 passenger car, was squeezed into the Land Rover's engine bay. The 2625 cc unit's output was reduced from that of the saloon car version. Camshaft timings were adjusted and the compression ratio was reduced to, in some cases, as low as 7:1 for Third World use. The engine was rated at 83 bhp at 4 500 rpm and a torque of 128 lbs/ft at 1 500 rpm. A high capacity oil bath air filter was also fitted and the engine produced the smooth pulling power famous in Rover's saloon cars. Owing to handling considerations it was only offered with the long wheelbase version.

In the Land Rover Series-3, the most noticeable change was a new look front end with the headlamps being moved outwards (although this modification appeared during the last months of Series-2a production) and a brand new radiator grille. In Australia many outback travellers complained about the new grille - they couldn't use it for cooking over a fire as they could with the old steel mesh grille.

With the new design, however, water cans could now be fitted in the recesses next to the grille without blocking the headlamps. In the cockpit the instruments were shifted from the centre of the dashboard to directly in front of the driver. It also featured a brand new gearbox with revised ratios, synchromesh on 1st and 2nd, bigger and better brakes and improvements to the seat cushions and ventilation system.

In June 1976 the one millionth Land Rover, a specially painted Series-3 short wheelbase version, was driven off the production line by the Mayor of Birmingham during a grand ceremony at the Solihull plant in the English Midlands. Production of the Series-3 ended in 1984 following the introduction in 1970 of the Range Rover and in 1983 of the One-Ten.

LAND ROVER SERIES 1, 2, 2a AND 3

Many of these workhorses are bought and sold second-hand. If they have been well maintained they are a good purchase and are sure to last almost indefinitely.

Although the body is aluminium, the chassis does corrode and must be inspected closely before purchase. Areas prone to rust on the chassis are in the area surrounding the spring shackles and the chassis cross member at the rear. By modern standards, they are unsophisticated vehicles and Series 1 versions have become collectors' items. Series 2 versions are prone to axle half-shaft breakages and spares should be carried to remote areas. Clean Series 3 versions can make an excellent second-hand purchase.



A South African version of the Series 3 appeared in the form of the R6 - a 109-inch wheelbase chassis and a 12-seat station wagon body. Behind the very attractive flush grille was a 2.6-litre six-cylinder car engine and Spanish-assembled gearbox. It was a troublesome vehicle from the start and no matter how much redesigning work was done the overheating problems could not be overcome.

LAND ROVER DEFENDER			
	Tdi 110 s/w	BMW 90s/w	Tdi5 130
ENGINE			
	diesel	petrol	diesel
Cylinders/Configuration/cm ³	4 in-line/2495	6 in-line/2793	5 in-line/2495
Max. power (DIN) Kw at RPM	83 @ 4000	141 @ 4000	90 @ 4200
Max. torque (DIN) N.m at RPM	265 @ 2500	280 @ 2000	300 @ 1950
TRANSMISSION			
Type: 5-Speed manual permanent four-wheel drive with two-speed transfer gearbox			
Differential locks: Centre. Axle differential locks available from Gearmax			
SUSPENSION			
Front: Rigid axle with fully floating shafts on coil springs, panhard rod, radius arms and shock absorbers.			
Rear: Rigid axle with fully floating shafts on coil springs, A frame, radius arms, shock absorbers. Rear anti-roll bar from 1988.			
DIMENSIONS			
Wheelbase (mm)	2794	2360	3226
Ground clearance (mm)	215	215	215
Approach angle	50°	51°	50°
Departure angle	34°	53°	34°
Ramp break over angle	152°	141°	155°
Fuel tank capacity	80	55	80
Kerb weight	2055	1795	2086
Mass payload (kg)	1188	1326	1650
Tyre sizes front and rear	7.50 X 16	7J X 16	7.50 X 16
Wading depth (mm)	500	600	500
Towing with brake (Kg)	3500	3500	3500
Load tie-down rings	no	no	no
Std body suitable for h-lift jack	yes	yes	yes

They are common second-hand purchases and most continue to plague their owners with overheating.

Another South African Land Rover sharing the flush grille of the R6 was the diesel or petrol Series-3 pick-ups launched in 1984 which had ADE 4-cylinder engines. They was discontinued in 1986.

Owing to the variations in Land Rover design during the last 46 years of production, it would take an entire volume to list the specifications of all of the different vehicles. For this reason only the specifications of the most common of the old Land Rovers are given - the short wheelbase 88" and long wheelbase 109" vehicles with the 6-cylinder petrol and 4-cylinder diesel engine and the Land Rover Forward Control modified by Gulf Industries and once sold in South Africa as the Over-Lander motorhome.

LAND ROVER DEFENDER 90/110/130

In 1982, with the success of the Series-3 and the Range Rover behind them, Land Rover decided to combine the two designs. Having made no significant change to the traditional Land Rover design for so long, this was a giant leap forward. The result was the Land Rover 110 (One Ten) and 90 (Ninety). The new vehicle was faster, better on the road and better off it. It was smoother, stronger, more comfort with less noise and a better choice of engines. It took Land Rover from a position falling fast behind the



ABOVE: Defender 110. BELOW: Defender 90.



Japanese to a place back out in front.

Although the vehicle appeared to be a Range Rover-Land Rover hybrid, it did not share as many components with its forefathers as one might think. The chassis design was Range Rover but, unlike the Range Rover, it was built to be strong enough for military use. Like the Range Rover coil springs, panhard rods and radius arms located the axles but the gearbox was new, although it also had full-time four-wheel drive. Much of the

body was common to the Series 3 but, because the new axles had a wider track, wheel arch eyebrows were added.

This gave the the vehicle a particularly aggressive look and despite the fact that they were added to solve the problem of a wide axle on a narrow body, other manufacturers began designing similar wheel arch flares on their vehicles. Engine options were a 4-cylinder 2.1/4-litre and 3.5-litre V8 petrol, although by far the most common in South Africa was the V8.

In 1990 the One Ten and Ninety was named 'Defender' and now comes in three wheelbases: 92,9, 110 and 130 inches, called the Defender Ninety, One Ten and One Thirty respectively.

Prospective Defender buyers beware - the Defender is a truck and not a car. Its close cousins, the Discovery and Range Rover, are off-road cars. The Defender can best be described as an off-roader with good road manners. It is not altogether suited to everyday suburban motoring and, although not uncomfortable, is big and turns like a school bus. Luxury packages are called County or Hi-Line and include cloth seats, carpeting and air-conditioning. One Tens have been built with a 3500cc V8, a 2500cc 4-cylinder petrol and during the past eight years, three versions of a 2600cc 4-cylinder turbo-charged diesel engine. The first of these was the '100' engine and was plagued with reliability problems. The second version, the '200' engine was a vast improvement, offering reliability combined with excellent economy. The latest version, predictably called the '300', is again a vast improvement on its predecessor. The 3500 V8 petrol engine has been discontinued.

Between 1988 and 1991, V8 Defenders were fitted with a Spanish-assembled LT85 5-speed gearbox. 90% of these gearboxes were faulty due to under-sized bearings being fitted in the factory. These gearboxes are good for only about 80 000kms, though many have failed much sooner. Once the bearings wear, the gearbox becomes noisy in all ratios other than fourth. At one stage AAD were contributing towards replacing the bearings with the correct parts, but that appears to be a thing of the past and Land Rover SA are no longer honouring guarantee claims. Purchasing a second-hand vehicle fitted with an untouched LT85 gearbox could be risky. Together with the '300' engine, the current gearbox is smoother and quieter but not as strong. This five-speed manual gearbox is now common to Defenders and Discoveries.

South African manufactured Defenders had galvanised chassis until BMW took over ownership, but now have standard UK spec chassis with rust-proofing applied. Virtually all Defenders manufactured in South Africa up to about 1997 have or have had water-proofing problems.

Current engine choices are the Tdi 5-cylinder diesel and the BMW 6-cylinder 2.8-litre petrol. When there was a choice between the 300Tdi engine and the BMW 2.8, Land Rover had difficulties convincing buyers to take the 2.8. With the new 5-cylinder their task is made even more difficult because the differences in performance have narrowed further. Gone is the tractor-like thump of the older diesel and gone is the severe turbo lag. The new engine is sweet, smooth and powerful. Lots of low down torque and improved cruising has made a great vehicle greater. One blot remains on the horizon to buying, what I consider to be an

outstanding vehicle, is the poor build quality and the notorious unreliability of Land Rover gearboxes.

MAZDA B-SERIES

Introduced in November 1990 as a single cab version, Samcor soon began development of a double-cab variant that is still with us today. The B-series has got better and better. Two engines are now offered: a 4-cylinder 2.5-litre intercooled turbo-diesel and a similar normally-aspirated diesel. The ubiquitous 3-litre V6 Essex engine has been discontinued.

Suspension is independent double wishbone with coils springs at the front and leaf springs at the rear and manual free-wheel hubs are standard. Also see Ford Courier page 49.



MITSUBISHI COLT

Introduced in November 1994, the Mitsubishi Colt is a twin-cab 4X4 based on a two-wheel drive bakkie modified to compete with the wide range of double-cab vehicles. The Colt is built by Mercedes Benz South Africa with 2.6-litre and 3-litre engines in two and four-door body styles but although it originates from the same manufacturer in Japan, it shares very little with the Mitsubishi Pajero or Shogun. It has part-time four-wheel drive with automatic free-wheel hubs. The first Colt 4x4s gained a fair market share by keen pricing and looks. Some early Colts had transfer gearbox failures, a problem which was sorted out fairly early in the vehicle's production run, so buying second-hand should be fairly safe.

The new Colt is happily not an old Colt with some fancy body panels and interior - it is all new. From the moment I sat in the driver's seat this was obvious. And what's better, off-road the improvement is outstanding. Gone is the harsh ride and lack of wheel travel. The new Colt is an accomplished off-roader and can take its place with the best of Toyota, Isuzu and Nissan. The new



MAZDA B-SERIES 4X4

ENGINE

Fuel	old petrol	turbo-diesel
Cylinders/Configuration/cm ³	V6/2994	4 in-line/2499
Max. power (DIN) kW at RPM	104 @ 5700	80 @ 3500
Max. torque (DIN) N.m at RPM	232 @ 3250	257 @ 2000

TRANSMISSION

Type: Manual 5-speed part time four-wheel drive with free-wheel hubs and two-ratio transfer gearbox.

Differential lock/s: none standard. Rear axle lock and Detroit Locker available from Gearmax.

SUSPENSION

Front:	Independent double wishbones with torsion bars and shock absorbers.	
Rear:	Rigid axle, leaf springs and shock absorbers.	

DIMENSIONS

Wheelbase (mm)	3000	3000
Ground clearance (mm)	230	210
Fuel tank capacity (litres)	66	82
Mass (kg)	1594	1696
Payload	1000	1059
Tyres sizes front and rear	245/75 SR15	215 R15
Std body suitable for high lift jack	rear only	rear only

MITSUBISHI COLT RODEO

old 3000 V6 D/cab new 3000i V6 D/cab

ENGINE

Fuel	petrol	petrol
Cylinders/Configuration/cm ³	V 6/2972	V 6/2972
Max. power (DIN) kW at RPM	109 @ 5000	133 @ 5250
Max. torque (DIN) N.m at RPM	234 @ 4000	255 @ 4500

TRANSMISSION

Type: 5-speed manual or 4-speed automatic part time four-wheel drive, auto free-wheel hubs and two-ratio transfer gearbox.

Differential lock/s	rear optional	rear
---------------------	---------------	------

SUSPENSION

Front: Independent double wishbones and torsion bars, stabiliser and shock absorbers.

Rear: Solid axle on semi-elliptical leaf springs and shock absorbers.

DIMENSIONS

Wheelbase (mm)	2960	2960
Ground clearance (mm)	210	215
Approach angle (degrees)	33.9	n/a
Departure angle (degrees)	24	n/a
Fuel tank - capacity (litres)	75	95
Mass	1615	1880
Payload (kg)	700	1000
Tyres front and rear	245/75 R15	265/75 R15
Std body suitable for high lift jack	rear only	rear only

V6 engine is also remarkable off-road. Driving up steep banks I deliberately maintained revs at below 1000 and it still pulled strongly. There are not many V6 engines that can match its flexibility. Comfort and ergonomics are also modernised and improved.

Looks wise its striking appearance turns heads. It is also the first double-cab to be available with automatic transmission.



NISSAN HARDBODY

Nissan's pick-up range shares many technical details with the Sani station wagon. See page 85.

The new Hardbody was released early 1999. At the time of printing I had not yet driven the new vehicles. Specifications of the new model appear on the opposite page.



TOYOTA HILUX

The Hilux is one of the most capable wilderness exploration vehicles ever and can easily compete with any lightweight 4x4 that challenges it. It has been called 'The Workhorse of Africa' and any traveller into Third World Africa can testify to the Hilux's abundance. The reason for this is simple - the Hilux is a simple workhorse.

It first made its appearance with four-wheel drive in 1979, 10 years after the first 2x4 Hilux was introduced. This first vehicle shared many body components with the one-ton Stout. In 1984 the body was redesigned and with it South Africa's first double-cab configuration met with immediate success. It appeared as if the country's 4x4 leisure market got what it wanted - a loadable workhorse that could carry passengers too.

In 1989 the Hilux became the first diesel 4x4 bakkie on the market and in 1991 the well known Raider models were introduced. In 1998 the Hilux changed what I believe to be fundamental in its success in Africa - the suspension layout. The old model Hilux has simple and very robust leaf spring axle mountings. The solid axles and massive ground clearance are what make it such a formidable off-roader. If you are considering purchasing a vehicle in this class and expect it to work hard in difficult conditions then you cannot do better than the old Hilux. Renowned for reliability, it was built with a 2.2 or 2.4-litre 4-cylinder petrol and a 2.4-litre diesel engines.

The gearbox is an all synchromesh 5-speed unit with a low-ratio transfer box and part time four-wheel drive. Manual free-wheel hubs are standard and ground clearance is the best in its class.



The original Hilux was developed on an all-new chassis under a modified Stout body.

FRANCOIS ROSSOUW

Toyota's 1997 engine upgrade, with the 2,4-litre 4-cylinder 22R engine replacing the 4Y 2,2-litre, improved on-road performance. Although the 4Y engine is smoother, it is less effective off-road and although the torque specs would disprove this, low-end torque seems to be diminished. At this time cosmetic changes to the new

1999 NISSAN HARDBODY			
ENGINE	2400i s/cab	3200 d/cab	3000i d/cab
Fuel	petrol	diesel	petrol
Cylinders/Configuration/cm ³	4 in-line/2389	4 in-line/3153	V6/2663
Max. power kW at RPM	88 @ 5200	76 @ 3600	110 @ 4800
Max. torque N.m at RPM	189 @ 3600	216 @ 2000	237 @ 4000
TRANSMISSION			
Type: Manual 5-speed part time four-wheel drive with two-ratio transfer gearbox.			
Differential lock/s	limited-slip rear	limited-slip rear	limited-slip rear
SUSPENSION			
Front: Independent double wishbones, torsion bars, stabiliser bar and shock absorbers.			
Rear: Semi-floating rigid axle, leaf springs and shock absorbers.			
DIMENSIONS			
Wheelbase (mm)	2950	2950	2950
Ground clearance (mm)	220	220	220
Fuel tank capacity (litres)	90	90	84
Tare (kg)	1610	1858	1822
Tyres sizes front and rear	215/R15	245/75R15	245/75R15
Std body suitable for hi-lift jack no		no	no

OLD TOYOTA HILUX			
ENGINE	2200 petrol	2400 diesel	2400 petrol
Fuel	petrol	diesel	petrol
Cylinders/Configuration/cm ³	4 in-line/2237	4 in-line/2446	4 in-line/2366
Max. power (DIN) kW at RPM	75 @ 5200	55 @ 4000	80 @ 4800
Max. torque (DIN) N.m at RPM	182 @ 2400	158 @ 2200	186 @ 3200
TRANSMISSION			
Type: 5-speed manual part time (selectable) four-wheel drive with two-ratio transfer gearbox and free-wheel front hubs.			
Differential lock/s	None. Gearmax rear differential lock is available to vehicles with locally built axles.		
SUSPENSION			
Front and Rear: Rigid axle, leaf springs and shock absorbers			
DIMENSIONS			
	Pick up	Double Cab	
Wheelbase (mm)	2840	2840	
Ground clearance (mm)	220	220	
Fuel tank capacity	100	80	
Mass payload (kg)	750	500	
Tyres; old models	7.00 x 15 - 6 ply 205 SR 16		
Tyres; new models	215 R15C	215 R15C	
Suitable for high lift jack; Std.	rear only	rear only	
4X4 Raider	yes	yes	

vehicle can be identified by Toyota's new badging on the grille.

The general criticism that the Hilux's suspension has always been too harsh can be put down to the fact that the vehicle was designed to carry a load under adverse conditions, and, as with all vehicles suited to off-road conditions, the suspension is a compromise. In the



The Toyota Hilux, probably the most universally respected off-roader in all of Africa.

case of the old Hilux the suspension was not compromised to a great extent and the vehicle is well suited to a hard life. As a result spare parts can even be found in remote villages. Although the Hilux is tough it does not like to be overloaded and can be broken if this is done.

In pre-1985 versions the battery support bracket is prone to failure and, although this has been improved with later models, it often fails in vehicles used in rough off-road conditions and should be modified and strengthened if this is the case.

The most worthwhile modification to the old Hilux is the Old Man Emu suspension. See page 101.

The first major mechanical and styling change came with the launch of the all new Hilux in 1998. Its introduction brought fear and dread to die-hard Hilux lovers because real off-roaders know that nothing compares to solid axles when you're off-road. It is true that solid axles offer many advantages off-road and a few disadvantages on-road but the new Hilux is clear proof that only in the most difficult conditions is independent front suspension a disadvantage worth noting.

Rumours that the new model would have a revised front suspension began about a year before the SA launch, undoubtedly due to the release of the vehicle in the US and Australia. At this time the fact that it was fitted with a modern independent torsion bar system instead of the archaic leaf spring and solid axle, overshadowed the fact that it was very likely that the new vehicle would have improved seating, ergonomics, ride, safety... the list goes on.

Now, for the first time, the Toyota Hilux can be compared with vehicles such as the Nissan and Isuzu 4x4 pickups and should not be compared with its predecessor. Why? Because the old Hilux could be forgiven for its hard ride, poor brakes and uncomfortable seating because it was such a robust off-roader. This attitude of forgiveness was evident with the old Land Rovers and early Range Rovers which all have on-road idiosyncrasies that drivers learned to live with while dotting on the vehicle's brilliance off-road.

I admit that I prefer solid axle suspension and am in harmony with the vast majority of serious off-roaders around the world. There will be many Hilux owners who will be reluctant to change to independent front suspension and there may even be some who move to the Land Rover Defender. My conclusion is that 95% of

existing Hilux owners will find that the new model more than meets their off-road requirements in terms of performance and ability and will exceed their expectations as a long distance cruiser and town vehicle. Some less experienced drivers will even find the new model easier to drive and therefore more effective off-road.

There is a hint of sadness with the passing of the old Hilux. Unfortunately for Toyota, the legacy of the Hilux 4x4 is so good



NEW TOYOTA HILUX

ENGINE

	2700i petrol	3000 diesel
Cylinders/Configuration/cm ³	4 in-line/2694	4 in-line/2986
Max. power (DIN) kW at RPM	108 @ 5200	67 @ 4000
Max. torque (DIN) N.m at RPM	235 @ 2400	192 @ 2200

TRANSMISSION

Type: 5-speed manual part time (selectable) four-wheel drive with two-ratio transfer gearbox and manual free-wheel front hubs.

Differential lock/s	rear	rear
---------------------	------	------

SUSPENSION

Front: Independent double wishbone, torsion bar, stabiliser bar, gas shock absorbers.

Rear: Rigid axle, leaf springs and gas shock absorbers.

DIMENSIONS

	pick-up	double cab
Wheelbase (mm)	2860	2860
Ground clearance (mm)	225	225
Fuel tank capacity	92	81
GVM (kg)	2590	2590
Mass payload (kg)	1020	850
Tyres; old models	245/75 R15	245/75 R15
Std body suitable for high lift jack	rear only	rear only

that it is almost impossible to better. There are very few working vehicles that enjoy the unquestioned loyalty and admiration of so many. I have yet to be convinced of the new vehicle's ability to generate that kind of following. Only time will tell.

The new engine line-up improves the Hilux's appeal, especially the 2,7-litre fuel injected petrol which has good acceleration and is easy to drive off-road. The engine however is only suited to unleaded petrol. I drove it on dunes and it displayed ample power and torque and most of the climbs were tackled in high-range first for the short climbs and second for the longer, momentum climbs. The 3-litre diesel is not unlike the old model 2400 petrol in these conditions and often needed several attempts at each obstacle. As a cruising vehicle the 3-litre diesel is underpowered, so a turbo modification is needed to satisfy most users although, even with a turbo, it is still not powerful enough to match the willingness of the 2,7 petrol models or many of the Hilux diesel competitors such as the Ford, Mazda or Isuzu. A Hilux with the Prado's 3-litre turbo-diesel engine is under consideration.

TOYOTA LAND CRUISER

In 1933 the automotive division of Toyota Automatic Loom Works was established. The origins of the Toyota Land Cruiser began some five years after the Second World War, when US Army Jeeps were a common sight in Japan. These were the only 4x4s available and at the time there was a need for a vehicle a little larger than the Jeep and one that could be built locally as part of the reconstruction programme meant to revitalise Japan's economy. The US Army and the Police Reserve approached Toyota Motor Corporation with a request to design and produce such a vehicle. Toyota used its experience gained during the war when it produced the light scout car, the AK10. In only five months a Jeep-like prototype called the Toyota Jeep was built. Willys quickly pointed out that this name would be an infringement on its trademark, and in the following year it was given a new name - the Toyota Model B-85. Production commenced in 1953 and a year later, after 298 Model B-85s had been produced, so the name Land Cruiser made its mark on the world.

Not surprisingly, it looked very much like an American Jeep. (see page 52) It had a split front windscreen, the only Toyota ever to have one, and was driven by a 6-cylinder 63kW engine and a gearbox which initially had no synchromesh whatsoever, but later was given syncros on the two top ratios only. The 1963 FJ25 model was a short wheelbase machine with a 6-cylinder 236 cubic-inch engine and part time four-wheel drive which could be engaged without stopping. This powerplant remained the only engine available until 1968.

Exported from Japan in 1967, the 40 series FJ40 (SWB) and the FJ45 (LWB) and their replacements the FJ42 and FJ47, maintained the strictly military appearance of the earlier Land Cruisers while the 40 series maintained the looks of the earlier machines but came with a choice of hard and soft tops. The hard-top version featured a two-piece tailgate and small windows on the side at the rear. The LWB versions were offered with a pick-up, a soft-top, a canvas top and a cab-chassis options. The early 4-speed transmission was

replaced by a 3-speed column shift with a 2-speed transfer gearbox. Between 1960 and 1968 few visual changes appeared, but ongoing mechanical improvements took place. The gear change was moved from the column to the floor and the rear axle diff, which had occupied a position in the middle of the axle, was moved to the position it occupies today. The 15-inch wheel rims were replaced with those measuring 16 inches.



In 1968, the old “135” petrol engine was replaced by a 3 873cc 6-cylinder unit that produced increased power and torque. In 1969 a station wagon version appeared in the form of the FJ55, the predecessor to the modern 60 series station wagons.

This machine was the first four-door Cruiser, and was equipped with improved seating, better ventilation and heating and was far more modern in appearance than its predecessors. This vehicle introduced modern materials to the Land Cruiser such as plastic brake and clutch fluid reservoirs and disposable oil filters.

The 1971 range was improved when the engine was fitted with a twin barrel carburettor and the drive train was given Burfield

TOYOTA LAND CRUISER PICK-UP			
	FJ 40 Petrol (old)	FJ 40 Diesel	FJ 40 Petrol
ENGINE			
Fuel	petrol	diesel	petrol
Cylinders/Configuration/(cm3)	6 in-line/3956	6 in-line/4164	6 in-line/4477
Max. power (DIN) kW at RPM	101@ 4200	96 @ 4000	145 @ 4400
Max. torque (DIN) N.m at RPM	275 @ 2200	280 @ 2000	363 @ 2800
TRANSMISSION			
Type: Manual 5-speed part time four-wheel drive with free-wheel hubs and two-ratio transfer gearbox.			
Differential lock/s	none	none	none
Gearmax limited-slip rear diff available			
SUSPENSION			
Front and Rear: Rigid axle with semi-elliptic leaf springs and shock absorbers			
DIMENSIONS			
Wheelbase (mm)	2980	2980	2980
Ground clearance (mm)	185	230	230
Fuel tank capacity (litres)	90	90	90
GVM (kg)	3035	3035	3035
Mass payload (kg)	1000	1000	1000
Tyres	7.00 X 16	7.50 X 16	7.50 X 16
Std body suitable for high-lift jack	yes	yes	yes

constant velocity joints. Split wheel rims also made their debut. Tyre sizes went from 7.00 X 16 to 7.50 X 16. In 1972 the 3-speed box was replaced by a 4-speed unit and a heater/demister was fitted.

In 1975 perhaps the most significant range of improvements to the



already very popular and top selling Land Cruisers were made. A brand new 6-cylinder powerplant, the “2F” was introduced. It was a greatly improved 4230cc that produced 96 kW at 3600 rpm and a torque of 274 Nm at 1800 rpm. This was the year that the first diesel powerplant was available to the Land cruiser. The ‘H’ engine produced 70 kW at 3600 rpm and torque of 216 Nm at 2200 rpm. Diesel equipped vehicles were designated the ‘H’ series, and so the vehicle was known as the HJ45. Hazard warning flashers and inertia reel seatbelts were added, and some anti-pollution equipment was plumbed into the engines. Brake lining area was increased and fully floating axles were introduced to all models. During the remainder of the 1970s, ongoing modifications appeared. A tubular spare wheel carrier, revised mirrors, a canvas top option for the LWB model, an 84-litre fuel tank, the ‘B’ series diesel engine, quarter vents and improved seating kept the Land Cruiser up with the times.

The current Land Cruiser pick-up is the FJ75, only available in a long wheelbase version in South Africa. Like those before it, it remains an outstanding heavy-duty 4x4. Its design is old fashioned and rugged, it’s very reliable and spare parts are readily available throughout Africa. Suspension is by solid axles and leaf springs. Criticisms still include the long rear overhang that causes heavy loads in the pick-up load box to make the front ride up and cause handling difficulties. There are a few station wagon variants of the FJ40 and FJ75 but these are rare and make excellent safari vehicles. Current Land Cruiser pick-ups are now fitted with an uprated 4200 cc 6-cylinder diesel powerplant.



3. LEISURE STATION WAGONS

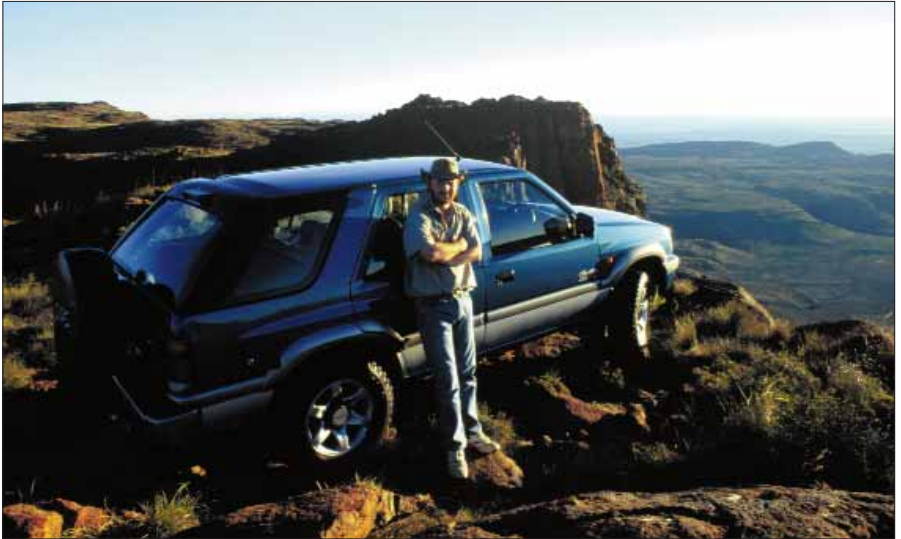
In this section: Isuzu Frontier and Trooper, Jeep Cherokee and Grand Cherokee, Land Rover Discovery and Range Rover, Mercedes Gelandewagen and M-class, Mitsubishi Pajero LWB, Nissan Sani and Patrol, SsangYong Musso, Toyota Land Cruiser Prado, GX and VX, Volkswagen Syncro Bus.

ISUZU FRONTIER

The Isuzu Frontier was introduced to South Africa in early 1998 competing in the budget priced station wagon market. Its main competitors are the Nissan Sani and SangYong Musso. Being a pick-up based station-wagon, it is very similar to the Sani but a fair bit smaller. In terms of comfort, driveability and loadability it is very similar. It is a little better off-road because of superior clearance and Isuzu's turbo-diesel engine. On the open road they are very much alike, especially when the V6 engines are compared. When compared to the SsangYong it is better suited to off-road use, for the same reasons as above but falls short when on-road cruising. The Isuzu is a good cruiser, quiet and comfortable but the interior is fairly simple without many frills.

Off-road the rear diff lock is a needed feature as the axle travel is fairly small, but I enjoyed it off-road and drove over particularly difficult terrain to position the vehicle for the South African TV commercial. Many have suggested that the final sunset shot with the vehicle perfectly positioned on the edge of a precipitous cliff was done through trick photography or with the help of a helicopter. With the help of two very energetic rock packers and a path finder I drove it to where the director wanted it - and enjoyed every minute of it.

ISUZU FRONTIER		
ENGINE	320 V6	280DT
Fuel	petrol	diesel
Cylinders/Configuration/cm ³	V 6/3165	4 in-line/2771
Max. power Kw at RPM	140 @ 5400	74 @ 3600
Max. torque N.m at RPM	260 @ 4200	230 @ 2200
TRANSMISSION		
Type: Part time four-wheel drive with free-wheel hubs and two-ratio transfer gearbox.		
No. of forward gears	5	5
Differential locks:	Rear	Rear
SUSPENSION		
Front: Independent double wishbones, torsion bars, stabiliser bar and shock absorbers.		
Rear: Rigid axle, coil springs, stabiliser bar and shock absorbers.		
DIMENSIONS		
Wheelbase (mm)	2760	2760
Ground clearance (mm)	210	210
Fuel tank capacity (litres)	83	83
Kerb weight (kg)	1794	1805
Payload (kg)	n/a	n/a
Tyres	245/70 R16	245/70 R16
Load tie-down rings	yes	yes



The author with the star of the show - the Frontier as seen in the TV ad, perched on edge of a Karoo cliff after a gruelling but fun drive up the mountain.

Engine choices are the 2,8 turbo-diesel and the 3-litre V6. The diesel is better if you intend taking your Frontier exploring, the V6 if you intend staying close to the cities.

ISUZU TROOPER

The Isuzu Trooper was one of few vehicles to directly compete with the Range Rover when it was released in South Africa in the early eighties, and there are still a fair number of these older machines around. Suspension was by independent front wishbones and leaf springs and a solid axle at the rear. The current model is an altogether different vehicle. Suspension is now by independent front wishbones and a solid axle at the rear with coil springs. Luxuries such as central locking, electric windows, electric sunroof and all-round disc brakes are standard and it is classed as a top-spec vehicle designed to compete with the Pajero Discovery and Prado. The Trooper is equipped with superb seating and is a very comfortable long distance cruiser. It is also very powerful and accelerating and overtaking manoeuvres are a pleasure. The



Trooper's most serious handicap emerges when it is taken off-road. When moving over rough ground in low ratio first or second and trying to keep speed down, it is very difficult to control the vehicle as delicate power applications are awkward due to an over-sensitive accelerator. For the same reason, driving in slippery stuff at low speeds becomes difficult and the Trooper tends to display a lot of unnecessary wheel-spin.



Steering is light with good feel and the brakes are superb. The manual gearbox is car-like and engaging four-wheel drive is effortless and can be done on the move. Troopers are fitted with automatic free-wheel hubs and part-time four wheel drive. Despite recent exterior and interior styling changes the Trooper's looks remain dated.

*Previous page: Third generation Trooper
Top: 2nd generation Trooper.
Above: 1999 Trooper.*

ISUZU TROOPER		
ENGINE	OLD MODEL	1999 MODEL
Fuel	petrol	petrol
Cylinders/Configuration/cm ³	V 6/3165	V 6/3165
Max. power kW at RPM	130 @ 5200	151 @ 5400
Max. torque N.m at RPM	260 @ 3750	284 @ 3000
TRANSMISSION		
Type: 5-speed manual, part-time four-wheel drive with two-ratio transfer gearbox. Old model has auto hubs, new model has manual or auto hubs.		
Differential locks: None standard. After sales rear axle limited-slip differential available from Gearmax.		
SUSPENSION		
Front: Independent double wishbones, torsion bars, stabiliser bar and shock absorbers.		
Rear: Rigid axle, coil springs, stabiliser bar and shock absorbers.		
DIMENSIONS		
Wheelbase (mm)	2760	2760
Ground clearance (mm)	230	230
Approach angle (degrees)	40	40
Departure angle (degrees)	31	31
Fuel tank capacity (litres)	85	83
Mass tare (kg)	1865	1865
Payload (kg)	535	535
Tyres	245/60 R16	275/70 R16
Load tie-down rings	yes	yes
Std body suitable for high lift jack	no	

JEEP CHEROKEE and GRAND CHEROKEE

The Jeep Cherokee is a competitively priced five-door station wagon and, although the design is over twenty years old, remains a best-seller in the USA. It is old-fashioned, basic and a good all-rounder. It is a vehicle which excels at nothing, but manages to do everything with a degree of competence which attracts third and fourth time customers year after year. New models are offered with an excellent turbo-charged diesel engine which is worth serious consideration for a vehicle operating in Africa.

The Grand Cherokee is the flagship of the Jeep range and is a top-spec 4x4 crammed with creature comforts. The new Grand Cherokee V8 is also fitted with an extraordinary traction system. Instead of the ABS brake-managed traction control system found in the Range Rover and M-Class Mercedes, the Cherokee uses hydraulics to prevent wheel slip. The result is superb traction and excellent off-road performance. The soft suspension is still solid axles back and front. Like Land Rover, Jeep seem to be adamant that to lose the off-road advantage of solid axles is not on the card. With the Grand Cherokee the standard spare tyre is a compact type and must not be relied on during back country travel. Spare parts availability is improving as more dealers are established, many soon to be shared with Mercedes Benz due to the merger of Chrysler and Daimler. Petrol models can only run on unleaded fuel which is not available in many parts of the sub-continent, rendering petrol vehicles unsuitable for adventurous travel.



Top: Cherokee. Above: 1999 Grand Cherokee.

JEEP CHEROKEE AND GRAND CHEROKEE

	Cherokee 2.5TDI	Grand Cherokee 4.7 V8
ENGINE		
Fuel	diesel	petrol
Cylinders/Configuration/cm ³	4 in-line/2499	V8/4701
Max. power kW at RPM	85 @ 3900	172 @ 4600
Max. torque N.m at RPM	300 @ 2000	300 @ 3200
TRANSMISSION		
Cherokee: 5-speed manual part time 4wd (TDI) or full-time 4wd 5-speed manual or 4-speed automatic with 4.0 petrol.		
old Grand Cherokee : 5-speed manual or 3-speed automatic permanent 'Quadra Trac' 4wd with centre viscous couple unit and limited-slip rear differential .		
new V8 Grand Cherokee: 4-speed automatic with Quara-trac hydraulic anti-slip system		
Differential locks	rear	limited-slip rear differential
SUSPENSION		
Cherokee	Front: Solid axle, coil springs and shock absorbers Rear: Solid axle, leaf springs and shock absorbers	
Grand Cherokee	Front: Solid axle, coil springs stabiliser and gas shock absorbers Rear: Solid axle, coil springs stabiliser and gas shock absorbers	
DIMENSIONS		
Wheelbase (mm)	2575.5	2691
Approach angle	38°	36.7°
Departure angle	32°	28.6°
Ramp break-over angle	158°	157.4°
Ground clearance (mm)	211	210
Fuel tank capacity (litres)	76	78
Kerb weight	1706	1818
Tyres	225/75 R15	215 or 225/75 R15
Payload (kg)	518	520
Std body suitable for high lift jack	no	no

LAND ROVER DISCOVERY

In 1989 Land Rover - competing directly with many Japanese, who by now were producing excellent vehicles fitting into a category lying between the Land Rover and the now very luxurious Range Rover - launched the Land Rover Discovery by fitting a brand new two and four door estate car body on a Range Rover chassis. It was offered with either the 3500cc V8 or a 2500cc four-cylinder direct injection turbo-charged diesel engine.

The Discovery is classed as a top-spec 4WD leisure vehicle and is grouped with the Mitsubishi Pajero, Isuzu Trooper and Toyota Land Cruiser GX. Like all these vehicles, off-road ability and on-road comfort trade-offs have taken place. Compared with the opposition, the Discovery is better suited to off-road use than its competitors, with the associated on-road performance penalties.

Its superior axle articulation gives it outstanding ability in the rough which is paid for by more-than-average body roll. On-road comfort is still excellent and far superior to the early Range Rover.

The 1994 face-lift introduced an all-new interior, uprated 3,9 litre V8 engine and improved on-road manners with the fitting of anti-roll bars to the suspension. Land Rover claim that these fittings, long withheld from the Discovery and Range Rover because of the

detrimental effect on the vehicle's phenomenal vertical wheel travel, do not affect off-road performance to any great extent. They also improve safety and will only be felt when the going gets really difficult.

The two engine options are ideal for such a vehicle - the V8-petrol for the city slicker with off-road aspirations and the Tdi for the long-distance cruiser and explorer. If you want a Discovery to perform well off-road the standard tow bar must be removed or modified as in standard form it is so low that it even catches when climbing off the pavement! Side steps are also not a sensible option for the Discovery if any off-road use is intended.

The launch of the Discovery Series 2 in early 1999 introduced not only a longer and wider vehicle but some new technologies. In addition to HDC (Hill Decent Control) there are new engine management systems called HPI, EUI, ECM and FTC, the details of which go beyond the scope of this book. Even without ACE (Active Cornering Enhancement), Land Rover's new stabilising system, it is better than ever on-road. Off-road, however, it is a different story.

ETC (Electronic Traction Control) combined with a centre differential that cannot be locked makes for an off-roader which is difficult to drive and which, when coerced into traversing wheel-lifting terrain, spins its wheels and digs holes into the earth before moving over it, normally in a huge cloud of dust. This is because, without a locked centre diff, traction is quickly lost, and before ETC can compensate the vehicle slows. Should the driver make the mistake of easing the throttle, a common technique to regain traction, the vehicle stops. If the throttle is opened, as this system demands, ETC will lock any spinning wheel, transferring power to those with traction. However, it reacts so slowly that terrain negotiated with ease by lesser 4x4s finds the Discovery struggling. What is worse, when hill climbing over uneven ground, should the driver reduce the throttle opening at a stage when ETC is engaging, the vehicle stops and slides a short distance backwards before regaining traction. Should this occur on a slippery slope, serious loss of control could result.

Landowners may one day dread seeing one of these vehicles driving over their lands because it is now impossible to 'tread lightly', as wheel-spin is now part of driver technique needed to traverse uneven terrain.



Why is ETC behind Land Rover's newest creation? I believe that in an effort to simplify off-road driving, ETC eases the demands made on the driver by removing the question of when to lock the centre differential. But when conditions are more than just a slippery surface, instead of doing this, the opposite has occurred. Normal off-road driving techniques must be discarded in favour of a difficult, aggressive and environmentally unfriendly driving style. Add to this the extended body and reduced departure angle, which with a tow bar is very poor, and the Discovery Series 2 should be compared to vehicles like the Mercedes M-Class. Engine choice has been made easier with the splendid Tdi5 (see Defender for more details) which is a great improvement over the Tdi300, although turbo-lag is still there.

RANGE ROVER

In four-wheel drive terms the Range Rover represented a departure from the norm when it was introduced in 1970. It was a completely new vehicle in both design and concept. The idea first came to light as early as 1952 when a truly civilian version of the Land Rover, called the Road Rover, was built but never released. Rover intended to produce a vehicle that would combine the off-road abilities of a Land Rover with saloon-like cruising ability.

Development of the Range Rover began in earnest in 1965 and in less than five years the showrooms were bursting with

LAND ROVER DISCOVERY			
ENGINE	NEW V8I AUTO	TDI300	TDI5
Fuel	petrol	diesel	diesel
Cylinders/Config./cm ³	V 8/3950	4 in-line/2500	5 in-line/2500
Max. power kW at RPM	132 @ 4750	83 @ 4000	101 @ 4200
Max. torque N.m at RPM	320 @ 2600	265 @ 1800	315 @ 1950
TRANSMISSION			
Type: 5-speed manual or 4-speed auto permanent four-wheel drive with lockable centre differential and two-ratio transfer gearbox. Electronic traction control on some models			
Differential lock/s	viscous couple	centre	centre
SUSPENSION			
Front: Rigid axle with fully floating shafts on coil springs, panhard rod, radius arms, stabiliser and shock absorbers. Air springs in some new models.			
Rear: Rigid axle with fully floating shafts on coil springs, A-frame, radius arms, shock absorbers and stabiliser. Air springs in some new models.			
DIMENSIONS			
Wheelbase (mm)	2540	2540	2540
Ground clearance (mm)	200	200	200
Approach angle (degrees)	34.3	34.3	34.3
Departure angle (degrees)	n/a	28.9	28.9
Ramp Breakover angle	151	149	n/a
Fuel tank capacity (litres)	95	88,6	95
Kerb wieght	2020	2053	2205
Payload (kg)	655	667	600
Tyres sizes front and rear	255 R18	225 SR16	225 SR16
Std. body for h-lift jack	no	no	no

customers. Range Rovers were displayed with pride at motor shows all over the world and the motoring press announced a triumph for British engineering. In fact, a Range Rover was the first vehicle to appear in the Louvre Museum in Paris as “an outstanding example of modern sculpture” - praise indeed.

The Range Rover was a combination of a lightweight 3500cc V8 engine, permanent four-wheel drive transmission incorporating three differentials, and long-travel coil spring suspension. It was concluded that coil springs would not only produce a more acceptable ride on bitumen but also offer greater axle articulation to greatly improve its ability over rough ground. The V8 engine, first built by Rover and fitted to their saloon cars, was a unit bought from General Motors in 1965. It was light and produced its power at low revs - ideal for an off-road machine.

Unfortunately, owing to the high torque produced by the V8, no existing Land Rover gearbox was suitable, so a totally new transmission had to be designed and built. Permanent four-wheel drive would give the new vehicle the advantage of improved traction, cornering and wet weather handling. In the rough a driver could decide at any time to lock the centre differential and prevent slip between the front and rear axles. This made it an extremely easy vehicle to drive in the rough. Land Rover made sure that no one was in doubt as to the Range Rover's pedigree - the early models



The author's 1971 Range Rover Mark One.



The Range Rover's interior in 1971.

displayed a badge on the tailgate: “Range Rover by Land Rover”. The brilliance of the design did not go unnoticed. The RAC awarded the Dewar Trophy ‘for outstanding technical achievement in the automobile field’ together with the Don Safety Trophy which was awarded to the Range Rover in 1970. And as we have seen, its beauty was even honoured by the Louvre.

Early advertisers made the claim that there are four types of car - “a luxury car, a performance car, an estate car

and an off-road car” and that the Range Rover was all of these. The press responded by asking: what about economy cars? The V8 was thirsty, far more so than the four cylinder Land Rovers in production. The early Range Rover interior was spartan - there was no carpet, vinyl seats and owing to pressures for an early release date, three plastic plugs in the centre fascia where additional instrumentation could be fitted. In 1973 when the Mark 2 version was released the interior design was completed.



Range Rover 'Classic' Vogue.

RANGE ROVER		
	old Range Rover 3.5	new Range Rover 4.6 HSE
ENGINE		
Fuel	petrol	petrol
Cylinders/Configuration/cm ³	V 8/3528	V 8/3950
Max. power kW @ RPM	97 @ 5000	164 @ 4750
Max. torque N.m @ RPM	250 @ 2500	376 @ 3000
TRANSMISSION		
Type:	5-speed manual; full-time four-wheel drive with lockable centre diff and two-ratio transfer gearbox.	4-speed automatic, full-time four-wheel drive with viscous coupled centre transmission and two-ratio transfer gearbox.
Fairly overdrive (optional) step up ratio 0,728:1 for old 4-speed manual gearboxes		
Differential lock/s	centre	centre
New RR has electronic traction control. Auto versions have centre viscous coupling.		
SUSPENSION		
Range Rover 3.5		
Front	Rigid axle on coil springs, panhard rod, radius arms and shock absorbers.	
Rear	Rigid axle on coil springs, A- frame, radius arms, 'Boge' self levelling strut and shock absorbers.	
SUSPENSION		
New Range Rover		
Front: 5 ride-height settings controlled inside the cab. Rigid axle on pneumatic cylinders (air springs), panhard rod, radius arms and gas shock absorbers. Anti-roll bar.		
Rear: 5 ride-height settings controlled inside the cab. Rigid axle on pneumatic cylinders (air springs), A-frame, self-levelling strut and gas shock absorbers. Passive rear wheel steering and anti-roll bar by composite glass fibre axle location struts.		
DIMENSIONS		
Wheelbase (mm)	2540	2745
Ground clearance (mm)	191	214
Approach angle (degrees)	37	34
Departure angle (degrees)	32	25
Ramp breakover angle	150	151
Fuel tank capacity (litres)	81	100
Kerb weight	1725 - 1892	2090
Mass payload (kg)	680	603
Tyres sizes	205 SR 16	255/65 R16
body suitable for high-lift jack:	no	no

In 1972 the British Army's Trans-Americas Expedition drove two specially equipped Range Rovers down the entire length of the American continents, from Alaska to Cape Horn to open the way for the Pan Americas Highway. Between the two continents lay the notorious Darien Gap, a 350-mile stretch of swamps, mountains and forests. These were not the first vehicles to drive through the Darien Gap, but they were the first to drive the entire length of North and South America. The journey was not without its problems. Mile wide rivers, deep ravines and repeated differential failures that at one stage had both vehicles immobile were among the many obstacles that had to be overcome by the expedition.

The Range Rover remained unchallenged for so long that improvements to the design came very slowly. It soon became apparent that this vehicle was very much a status symbol and for almost a decade the changes made were largely cosmetic. The fact that Range Rovers were being used for many tasks originally done by Land Rovers seemed less important to the designers than making the vehicle more comfortable and more up-market. The main criticism levelled against the Range Rover was its overly heavy gear change which remained unchanged until the introduction of the 5-speed gearbox in 1983.

The Range Rover came to South Africa in 1979 and was assembled from CKD kits in Leyland's Blackheath plant. Quality control was poor and sadly the local vehicles earned a reputation for unreliability. Soon after this a series of fatal accidents were documented as a result of catastrophic tyre failures occurring on the now discontinued Michelin 205/16 M+S radials (see chapter 4)

Payload is 680kgs and the roof requires supporting if a heavily loaded roof-rack is to be carried. To increase the Range Rover's payload, fit Discovery rear springs, and if that is not enough, an OME suspension kit.

The last Classic Range Rover which came off the Solihull production line in 1996 has been replaced with a vehicle so sophisticated that I would not dare put it to the same tasks that I put my first 4x4 - a 1971 Mark I Range Rover pictured on page 75, the 2834th Range Rover to roll out of the factory.



In 1994, for the first time in its 24-year history, the Range Rover underwent a major styling change. The brief given to the new vehicle's designers was simple: create a vehicle that matches if not exceeds its predecessor's off-road ability, improves its driveability, comfort and loadability, while making sure that what is created is unmistakably Range Rover.

The result is a very beautiful, highly complex machine that cost £300-million to develop, once again setting the standard in 4x4 luxury vehicles.

Current models come with 4-speed automatic or 5-speed manual transmission, and pneumatic cylinder ride-height controllable suspension and three engine variants which include 4.6 and 4.0-litre V8 petrol and a BMW 2.5-litre turbo diesel. Unfortunately the diesel engine will not be sold in South Africa in the near future.

The new Range Rover has undeservedly earned a reputation in South Africa for regular breakdowns, caused by off-road obstacles such as deep water, which render the vehicle almost undriveable. These cases are rare and in most, the computer which controls the gearbox and suspension, has failed. Usually, this means that the vehicle suspension drops and gear selection can become a problem. Because the result of computer breakdowns is so dramatic stories have made the press. In reality, the Range Rover is no more susceptible than many other sophisticated vehicles, eg. Trooper, Pajero, Grand Cherokee, Mercedes M-Class etc. whose engines are computer-controlled and failure means that the engine does not run. During the first year of production reliability problems surfaced but are now much improved.

To take the idea of a luxury 4x4 one step further, the Range Rover Autobiography is available. Here, the buyer can select not only from a wide range of standard options, but even the type of glass can be selected as well as leather trim colour combinations, in-flight entertainment (for example VCR and TV scenes in the head restraints for rear passengers) and an almost infinite range of body colour options.

MERCEDES BENZ G-WAGEN

The Mercedes G is one of the most impressive off-road station wagons ever made and whenever I see them in action they never fail to impress. Their secret is a long-travel coil spring suspension that gives good articulation while not suffering the body lean that tends to lift weight off opposite wheels on side-slopes. Off-road this translates into easy going over rocks and boulders while at the same time, wheels don't lift when the vehicle is negotiating steep turns on slopes. In addition, the vehicle is so beautifully engineered and built for serious work. For example, the front is fitted with a pulling bar normally seen on military trucks. Clearance is generous and the front and rear differentials can be locked. All G-wagens are underpowered, which often means low first when the ideal gear should be low second, although the vehicle is so good off-road it rarely seems to matter!

Among its few weaknesses are its rear springs which should be replaced after 100 000 kilometres as they are prone to breakage after this. The older versions (461 series) have part-time 4WD, the newer ones (463 series) a permanent 4WD system. All have three

lockable differentials, and the newer models also have ABS braking, air conditioning, manual or automatic transmission in both short and long wheelbase. The 463 series is also more refined refined for long distance road work.

In 1998 the Gelandewagen was reintroduced to South Africa without out much media attention and it still does not appear to be a serious marketing venture. The model is the 290GD turbo-diesel auto in long and short wheelbase but surprisingly it is the 461 series which is absent of any frills. It is unlikely to find many buyers as it sells for more than a Land Cruiser 100 GX. The Gelandewagen is superb for the serious off-roader and in pure on/off-road performance it is as good as there is.



461 series short wheelbase



The author's 461 series 290GD Turbo-diesel in northern Namibia

MERCEDES BENZ M-CLASS

This highly sophisticated city 4x4, taking the Cruiser VX and Range Rover market head on, will without doubt attract the rich and famous. But I am not sure if it will attract the rich and famous who want to go off-roading and I imagine that with the Range Rover and Cruiser's off-road reputations and the M-class's 'softer' appearance, it will go no further than becoming the king of the urban jungle. The design is striking, the interior typical Mercedes and the on-road manners without fault. In this department it is as good as its competitors but when it's time to leave the road it trails in their dust. Not that the M-class is a bad off-roader, it's just that the RR and Cruiser do both so well. Lack of ground clearance is a fault and the limited wheel travel is only a minor hindrance as the ingenious traction control takes care of that - even when three

wheels are off the ground it keeps power to the driving wheel. Off-road the M-Class takes a little practice and a more aggressive approach than one would normally use works well. Easing the accelerator as a wheel spins as is normal procedure results in the vehicle slowing down instead of gaining traction and speeding up.

MERCEDES BENZ (STYRE PUCH) GELANDEWAGEN			
ENGINE	280 GE	230 G	290 GD
Fuel	petrol	petrol	turbo-diesel
Cylinders/Configuration/cm ³	2746/6 in-line	2300/4 in-line	5 in-line
Max. power (DIN) kW at RPM	115 @ 5250	66 @ 4400	90 @ 3800
Max. torque (DIN) N.m at RPM	226 @ 4250	167 @ 2500	280 @ 2000
TRANSMISSION			
Type: All have two-ratio transfer gearbox. 461 series: 4 or 5-Speed manual part time fwd with two-ratio transfer gearbox. 463 series: 5-speed manual full-time fwd with two-ratio transfer gearbox. 465 series: 5-speed manual or 4-speed auto full-time fwd with two-ratio transfer gearbox.			
Differential locks: Front and rear axle locks on all models. Centre lock on models with full-time 4wd.			
SUSPENSION			
Front: Rigid axle on coil springs, panhard rod, two control arms, torsion stabiliser bar shock absorbers.			
Rear: Rigid axle on coil springs, rubber helper springs, 2 control arms, shock absorbers.			
DIMENSIONS		LWB	SWB
Wheelbase (mm)		2850	2400
Ground clearance (mm)		225	225
Approach angle		37°	37°
Departure angle		32°	32°
Fuel tank capacity (litres)		75	75
Gross weight		2800	2500
Payload (kg)		865	655 - 735
Tyres front and rear		215 R 16	215 R 16
Standard body suitable for high lift jack		no	no

MERCEDES BENZ M-CLASS	
ENGINE	
Fuel	petrol
Cylinders/Configuration/cm ³	3199/6 in-line
Max. power (DIN) kW at RPM	160 @ 5600
Max. torque (DIN) N.m at RPM	310 @ 3000
TRANSMISSION	
Type: 5-Speed auto with lock-up clutch. Full-time four-wheel drive torque converter and electronic traction control.	
Differential locks: none	
SUSPENSION	
Front: Double wishbone, torsion bar, gas shock absorbers, stabiliser.	
Rear: Double wishbone, coil springs, gas shock absorbers, stabiliser.	
DIMENSIONS	
Wheelbase (mm)	2820
Fuel tank capacity (litres)	70
Gross weight	2010
Payload (kg)	540
Tyres front and rear	255/65 R16
Standard body suitable for high lift jack	no

A gentle push on the accelerator here does the trick. It likes slippery surfaces but doesn't enjoy rocky terrain, where from a driver's point of view, one is scared of pushing it in case it crashes down and damages expensive machinery. The chrome spare wheel carrier and protection bars lower the clearance further and look like an after-thought, as if the designers forgot about the location of the spare wheel until the last minute and were forced to quickly come up with a solution. The result spoils an otherwise elegant design. Add the optional chrome protection bars, which are so close to the ground that off-road travel is just about out of the question, the result looks like a mixture of 90's taste and 70's kitch.



MITSUBISHI PAJERO LWB

I thought that of all the followers of a 4x4 marque, Land Rover owners were the most passionate about their product. This was until I came into contact with die-hard Pajero owners. Controversy about vehicles will be stirred more often by Pajero owners than by anyone else. In my numerous radio talk shows or discussions, whether in the press or on my website, Pajero owners are the most outspoken and critical of other vehicles. I am not sure why but it is clear that the Pajero has a large and jingoistic following.

The Pajero is built by Samcor from imported SKD (Semi Knocked Down) kits, is available with 2,8-litre turbo-diesel and 3,5-litre V6 petrol engines and is a dual-purpose vehicle at home in the city and bush. To make comparisons with other



vehicles and to arrive at worthwhile conclusions it should be compared with the Land Rover Discovery, Isuzu Trooper and Toyota Land Cruiser Prado. On-road it is level pegging with the Toyota and Isuzu and may even better these for cornering ability and stability. The petrol and diesel engine options closely match the Prado's in performance, bettering the old Discovery diesel while similar to the Isuzu's petrol.



Off-road the Pajero is a good performer and is easy to drive but is inferior, if by a small margin, to the Toyota. It is without doubt better than the Isuzu but, for off-road ability, it cannot match the Discovery which is the best in its class. Rear axle articulation is good but at front, where it counts the most, it is very poor. This is why the Pajero is so stable on-road. Even mild off-road obstacles will find the front wheels lifting and spinning. This, in most cases, can be overcome with appropriate driver technique.

One of the Pajero's selling points is that it is neither a part-time nor full-time four-wheel drive vehicle - the driver may choose. This is Mitsubishi's 'Super-Select' transmission allowing a choice of two or four-wheel drive for use on-road and four-wheel drive for use off-road including low range gears. Front hubs are automatic and engage as the four-wheel drive lever is used. According to the

MITSUBISHI PAJERO			
	old 2.6 petrol	2.8 turbo diesel	3.5 V6 ECI.
ENGINE			
Fuel	petrol	diesel	petrol
Cylinders/Configuration/cm ³	4 in-line/2555	4 in-line/2835	V 6/3497
Max. power (DIN) kW at RPM	79 @ 5000	92 @ 4000	153 @ 5000
Max. torque (DIN) N.m at RPM	147 @ 3000	292 @ 2000	300 @ 3000
TRANSMISSION			
Type: 5-Speed manual or 4-speed automatic. Depending on model, part time or "Super Select" allowing part-time or permanent four-wheel drive with lockable centre differential. Automatic free-wheel hubs on current models. All with two speed transfer gearbox.			
Differential lock/s:	none	centre. new models also at rear	
SUSPENSION			
Front: Independent double wishbone, torsion bar, stabiliser and shock absorbers			
Rear (old models): Live axle, elliptic leaf springs and shock absorbers			
Rear (new models): Live axle, 3 link location, coil springs and shock absorbers			
DIMENSIONS			
Wheelbase (mm)	2695	2725	2725
Ground clearance (mm)	205	205	205
Approach angle (degrees)	N/A	40.5	40.5
Departure angle (degrees)	N/A	26.5	26.5
Fuel tank capacity (litres)	92	92	92
Gross vehicle weight (kg)	1700	2720	2720
Tyres sizes front and rear	215 R16	265/70 R15	265/70 R15
Std body suitable			
for high lift jack	no	no	no

handbook, disengaging them requires that two-wheel drive be selected and the vehicle reversed a short distance. In reality this is not so as they unlock on their own within a few kilometres after two-wheel drive has been reselected.

The 1998 cosmetic changes have not helped the Pajero in any way. The additions look like after-sales add-ons and what is worse, the side steps, which every Pajero owner knows are ripped off the moment the vehicle is taken off-road, are now permanent fixtures. The new mouldings without side-steps look very odd but with them, the Pajero must stay on a flat surface.

A brand new Pajero is due for release early 2000. Information on Pajero's short wheelbase model appears on page 43.

NISSAN PATROL (SAFARI)

During the eighties a version of the Patrol known as the 'Safari' was available in South Africa - the pick-up being built locally while the station wagon was imported. The Safari was the third in a trio of heavy-duty four-wheel drive pickups, sharing its load with the Toyota Land Cruiser FJ40 and the Land Rover 110 and it posed a serious challenge as it gained an excellent reputation for durability and reliability. Its off-road performance is excellent although it suffers a little through lack of ground clearance between front and rear axles. All have part-time four-wheel drive and the suspension is basic leaf springs all round with live axles.

The second generation Patrol, introduced in 1994, was the biggest vehicle in its class, bigger even than the Land Cruiser FJ80. Coil springs were introduced while the live axles were maintained



together with part-time four-wheel drive. A lockable rear axle differential was introduced.

The current all-coil sprung Patrol is a refinement in every respect - particularly cosmetically - and now the vehicle has broad appeal. The previous model's over abundance of chrome and almost grotesque styling found it few friends in Southern Africa and the vehicle was never very popular. However, in Australia

The third generation Patrol is distinctive in that it has even more chrome than most of its American competitors. It was the first Patrol with coil springs.

it attracts a huge following. To evaluate its performance it should be compared to the Land Cruiser GX. Performance is closely matched off-road but on-road it falls short in a number of ways, the most significant being the ride. The suspension has the tendency to feel a little brittle as if the tyres are over-inflated and

NISSAN PATROL		
	Safari	Patrol
ENGINE		
Fuel	petrol	petrol
Cylinders/Configuration/cm ³	6 in-line/2753	6 in-line/4169
Max. power kW at RPM	92 @ 5000	125 @ 4200
Max. torque N.m at RPM	195 @ 3000	325 @ 2800
TRANSMISSION		
Type: 4-Speed (early models) or 5-Speed manual part time four-wheel drive with two-ratio transfer gearbox and free wheel front hubs.		
Differential lock/s	no	rear axle
SUSPENSION		
Front and rear old model	solid axle, leaf springs, anti-roll bar, dampers.	
Front and rear new model	solid axles on coil springs, torsion bar type stabilisers.	
DIMENSIONS		
Wheelbase (mm)	2950	2970
Ground clearance (mm)	220	240
Departure angle	n/a	31°
Break-over angle	n/a	30°
Fuel tank capacity (litres)	82	95
Mass Tare (kg)	2859	2900
Tyres sizes front and rear	7.00 X 16	7.50 X 16
Std body suitable for high lift jack	no	no

NISSAN SANI		
	3 litre petrol	2700 Tdi
ENGINE		
Fuel	petrol	diesel
Cylinders/Configuration	V 6	4 in-line
Capacity (cm ³)	2960	2663
Max. power kW at RPM	110 kW @ 4800	69 kW @ 4100
Max. torque N.M. at RPM	237 Nm @ 4000	204 Nm @ 2400
TRANSMISSION		
Type: Manual 5-speed part time four-wheel drive with two-ratio transfer gearbox.		
Differential lock/s	none	none
SUSPENSION		
Front: Independent double wishbones with torsion bars, stabiliser bar and shock absorbers.		
Rear: Semi-floating rigid axle, leaf springs and shock absorbers.		
DIMENSIONS		
Wheelbase (mm)	2950	2950
Ground clearance (mm)	220	220
Fuel tank capacity (litres)	84	84
GVM (kg)	2749	2769
Tyres sizes front and rear	245/75 R15	245/75 R15
Std body suitable for high lift jack	no	no



on corrugations the ride can get quite unpleasant. On-road the big petrol engine has plenty of power and hauls this large vehicle along at respectable cruising speeds, performing about half way between the Land Cruiser's 4,5 petrol and 4,2 diesel engines. Seating, ergonomics and space utilisation are an improvement over its predecessor and in terms of extras it is good value when compared to its competitors.

NISSAN SANI

The Nissan Sani originated in 1983 and came as a result of Chris Holden's dream to build a locally produced affordable four-wheel drive station wagon. The first vehicles were rather rudimentary in comparison with the current production models and the prototype was built in a 3x6-metre garage. In 1986 James Bently joined Holden and together they created what is now a well known marque and a large group of contented followers. The Sani is built by Sani Industries in Pietermaritzburg where initially production stood at about five units per month. By the late eighties it had soared to 25 per month at which time Nissan, on whose chassis the Sani is built, bought a large shareholding in the company and then invested in an entirely new factory.

In 1989 the Sani's shape began to change and a new three-door model based on the Hardbody made its debut. Two years later a five-door version was released, powered by Nissan's 3-litre V6 engine. The increased power available to the Sani boosted its sales further. Soon after that, further body styles were introduced, including a double-cab, double-cab Executive and the familiar 5-door Executive.

What makes the Sani unusual is that the body is part fibreglass. The fibreglass components consist of traditional GRP (Glass Reinforced Plastic) exterior and interior panels built with the aid of RTM (Resin Transfer Moulding) bound together in what they call a 'Double Shell' system. Photographs of Sanis in roll-over accidents attest to the structural strength of the design. Added to the structure is a steel sub-frame and carbon fibre is placed in high-stress areas such as the door pillars.

The original Sani chassis was based on the Nissan Tracker, Nissan's first bakkie-based four-wheel drive. Likewise, current Sanis are based on Nissan's long-running four-wheel drive bakkie, called Hardbody. These were also once called Patrol.



FRANCOIS ROSSOUW



COURTESY NISSAN



COURTESY NISSAN



From the top down: The original Sani, the Nissan Tracker, the forerunner of the Sani, The first five-door, with the second generation the Sani tackled the luxury station wagon market.

All these vehicles have a solid rear axle on leaf springs at the back and independent front double wishbone torsion bar suspension. Nissan have shown consistent improvements to their Sani range and in late 1995 the front suspension was given a major revision with the addition of dual front coil springs and shock absorbers and revised towing apparatus designed primarily to improve performance in rough conditions. One result of this refinement was a significant improvement, especially off-road.

All have part-time four-wheel drive and manual free-wheel front hubs and are offered with a range of engines including their top-of-the-range 3-litre V6. Body options are numerous and include single-cab, extended single-cab and steel-body double-cab pickups as well as the Sani Executive package which includes a 5-door station wagon body and an interior fitted out for luxury travel. The suspension gives a fairly comfortable ride on sealed surfaces, but shows limitations of restricted vertical wheel movements when off-road. On earlier suspension systems the vehicle felt front-heavy and bottoming the

front suspension was done without difficulty. Older vehicles also had inappropriately designed towing equipment and bull-bars, creating poor approach and departure angles, degrading off-road performance.

The current model is the third generation Sani. It is better than earlier models in almost all respects except for off-road performance. The problems are caused by the styling department. When I see vehicles such as this arrive on the off-road scene I ask myself, "don't the styling people talk to anyone?". The side-steps, good looking and stylish as they may be, are far too low and are easily damaged off-road. They cannot be easily removed without removing plastic body styling panels.

SSANGYONG MUSSO

Riding heavily on the Mercedes engines installed, the Korean-built SsangYong Musso arrived to challenge the luxury leisure 4x4 market in 1995 and the model, due largely to its very competitive price tag, has done quite well in South Africa. The Musso is a road vehicle with fair off-road ability. Engine options begin with a normally-aspirated diesel version which is grossly underpowered developing 74kW at 4000 rpm. Add the South African turbo conversion and the Musso's power, although not abundant, develops 105kW at 4000 rpm, turning the vehicle into a comfortable cruiser. New petrol engined versions offer even more power and the local agents claim that the E320 is quicker off the mark than all the Musso's competitors, including those that sell for twice as much. The petrol Musso's drawback as a tourer is that it must be fed unleaded fuel unavailable in remote areas.

Off-road the Musso is a fair performer but is not as good as most of the competition. It should be compared to vehicles with similar price tags such as the Sani which has similar performance. Against top-spec station wagons, it falls well short of vehicles like the Discovery, Prado and Pajero. Ground clearance is its biggest problem but can be improved by adjustment of the torsion bars. In fact, the major-



SSANGYONG MUSSO			
ENGINE	230EL	320EL	602EL TDI
Fuel	petrol	petrol	diesel
Cylinders/Configuration/cm ³	4 in-line/2295	6 in-line/3199	5 in-line/2874
Max. power kW at RPM	112 @ 5300	162 @ 5500	105 @ 4000
Max. torque N.m at RPM	225 @ 4000	310 @ 3750	300 @ 2800
TRANSMISSION			
Type: 5-speed manual or 4-speed auto part time four-wheel drive with two-ratio transfer gearbox and automatic free-wheel hubs. 320EL has full-time 4wdrive			
Differential lock/s	none	none	none
SUSPENSION			
Front: Independent double wishbone, torsion bar and telescopic shock absorbers.			
Rear: Live axle, coil springs, shock absorbers.			
DIMENSIONS			
Wheelbase (mm)	2630	2630	2630
Ground clearance (mm)	205	205	205
Approach angle (degrees)	27.4	27.4	27.4
Departure angle (degrees)	27	27	27
Fuel tank capacity (litres)	72	72	72
Kerb weight (kg)	1876	1931	1876
Tyres size: front and rear	235/75 R15 or 255/70 (320ES0)		
Std body suitable for high lift jack no		no	no

ity of Mussos have badly set front suspension due to the months they spend in containers in transit when their suspensions are fully compressed by the tie-downs. As a result most Mussos, even brand new ones, have lower-than-spec ground clearance at the front.

As with so many vehicles in this class the standard tyres are light-duty and should be changed if adventurous travel is intended. Transmission is part-time four-wheel drive Borg Warner 5-speed manual gearbox and automatic free-wheel front hubs. With its growing popularity, spare parts are becoming more readily available throughout the sub-continent.

TOYOTA CONDOR

Toyota's true 4x4 stationwagon at the price of the average 4x4 double-cab fits into a cosy gap in the market and the new product is perfect for its position. The uninspired design and style of the Condor belies its performance; enjoyable and competent in all theatres of operation, and while far from exhilarating, ideally suited to its role as light duty family off-roader. The Condor has front independent torsion bar suspension with a solid axle on leaf springs at the back. Engine options are a 2,4-litre petrol engine or a 3-litre diesel. As clear proof that the Condor has been developed to handle high-stress motoring the chassis is a separate ladder frame which ensures strength off-road. As with all Toyotas, its build quality is excellent. Off-Road performance is fair, but ground clearance is lacking both between the front wheels and between the axles, which are its most serious handicaps. Another is the inability to engage centre diff lock in high range as the system auto locks when low range is selected, which means that high speed gravel cannot be done with the added security of locked 4-wheel drive. Axle articulation is limited and not unlike that found in many 4x4 pick-ups while approach and departure angles are average. Considering the Condor's size and weight, fuel consumption is heavy in both diesel and petrol models. The Condor concept is the answer for the adventurous traveller wanting a station-wagon while working on a tight budget.



TOYOTA LAND CRUISER PRADO

Introduced to South Africa in 1997 the Prado is the first Toyota 4x4 station wagon that has broken their tradition of solid axle suspension all-round. The Prado has independent front coil spring suspension and a solid rear axle on coils. The Prado is a luxury station wagon, smaller than the Cruiser 100, with permanent four-wheel drive transmission with lockable centre and rear differentials. The Prado comes with two engine options, a 3,4-litre V6 petrol and 3-litre 4-cylinder diesel. If you are looking for a vehicle that will spend 99% of its time on-road then choose the petrol. If you plan to be a little adventurous, go for the diesel. The diesel engine is a beauty, offering good cruising and town driving power but also enough low down torque, where the turbo is inoperative, to allow really low engine speeds when moving over rough ground.



Having driven one for over a year the Prado continues to impress. Off-road it is as able as any luxury 4x4 on the market and in this department I would place it behind the Discovery but superior to the Pajero, if by small margins. Rarely have I ever driven a vehicle more able on dunes than the diesel Prado - put it into low-range fourth and it feels unstoppable and very easy to drive. Apart from more body roll, on the road it is equal to the Pajero but superior to the Discovery. Its interior is unexciting and its competitors beat it for seating and appointments. The Prado is not well suited to heavy loads and vehicles built before about May 1998 had rear suspension problems which result in easy bottoming of the rear axle, even without a load. This has been corrected to some degree on current models. Heavy-duty springs and shocks do well on the Prado and if you intend to use a Prado for heavy loads put them on your 'must have' list. The Prado has passed the highest passenger car safety regulations available and is probably the safest 4x4 in the world. One of the remarkable attributes of the Prado which is superior to any four-wheel drive vehicle I have ever driven is its manners on rough gravel. Nothing provokes the Prado into an unpleasant slide and never does it feel as if it will take you by surprise on loose, uneven surfaces. Lock the centre differential in these conditions and it displays almost uncanny stability.

I ran a diesel Prado for 36 000kms before returning it to a sponsor. I have to say that it was the most effortless, trouble-free 40 000 kms I have done in my life. The vehicle performed brilliantly without a single fault emerging. Tyres were Conti Trac AT 235/85 R16.

TOYOTA LAND CRUISER - 50, 60, 80 and 100 series

I am unable to establish when the first Land Cruiser station wagon was released but it may have been in 1965. The vehicle shared the chassis of the pick-up but the body was completely different, designed to carry people instead of heavy loads. This was the FJ55. Few of these early station wagons found their way to South Africa. In 1980 the FJ55 was replaced by the series 60. In tune with the growing leisure market in 4x4s, the FJ60 came equipped with luxuries like power steering, cloth seat trim and air

TOYOTA CONDOR

ENGINE

Fuel	diesel	petrol
Cylinders/Configuration/cm ³	4 in-line/2986	4 in-line/2438
Max. power (DIN) kW at RPM	66 @ 4000	85 @ 4800
Max. torque (DIN) N.m at RPM	192 @ 2400	195 @ 2800

TRANSMISSION

Full-time four-wheel drive with two-ratio transfer gearbox with a lockable centre differential.
Differential lock/s: centre centre

SUSPENSION

Front: Independent wishbone, stabiliser bar, torsion bars and shock absorbers.
Rear: Rigid axle, leaf springs and shock absorbers.

DIMENSIONS

Wheelbase (mm)	2650	2650
Ground clearance (mm)	205	205
Approach angle (degrees)	37	37
Departure angle (degrees)	30	30
Fuel tank capacity (litres)	70	70
GVM	2195	2130
Tyres	205/70 R15	205/70 R15
Load tie-down rings	no	no
Fuel tank capacity (litres)		

TOYOTA LAND CRUISER PRADO

ENGINE

Fuel	diesel turbo	petrol
Cylinders/Configuration/cm ³	4 in-line/2982	V6/3378
Max. power (DIN) kW at RPM	92 @ 3600	132 @ 4800
Max. torque (DIN) N.m at RPM	295 @ 2400	298 @ 3600

TRANSMISSION

GX: 5-speed manual or 4-speed full-time four-wheel drive with two-ratio transfer gearbox.
VX: 4-speed auto full-time four-wheel drive with a lockable centre differential. All models have two-ratio transfer gearbox.

Differential lock/s: centre and rear centre and rear

SUSPENSION

Front: Independent double wishbone, coil spring and shock absorbers.
Rear: 4-link, rigid axle, coil springs, stabiliser bar and shock absorbers..

DIMENSIONS

Wheelbase (mm)	2675	2675
Ground clearance (mm)	245	245
Approach angle (degrees)	36	36
Departure angle (degrees)	30	30
Fuel tank capacity (litres)	90	90
GVM	2750	2710
Tyres	265/70 R16	265/70 R16
Load tie-down rings	yes	yes
Std body suitable for high lift jack	no	no

conditioning. The buyer could also choose between petrol and diesel engines.

The FJ60 is found working for its keep all over the Third World and have for many years been the most popular choice of many

aid organisations. The leaf springs are softer than those found on pick-ups so passengers get a spongier ride when the going gets rough, but these springs give a superior ride on the tarmac. Heavy steering is power assisted and luxury items such as air conditioning are fitted to many models. Criticisms include heavy fuel consumption and the location of the spare wheel behind the rear axle under the vehicle which is an obvious disadvantage off-road.



In 1990 a totally new station wagon entered the market - The FJ80 - with the coil spring suspension and a redesigned body that so many 4x4 enthusiasts admire today. The 80-series was a major improvement in every sense - a fast and comfortable vehicle with improved off-road ability and an outstanding towing vehicle superior to almost anything on the road. The coil spring suspension is an excellent balance for cruising comfort and off-road ability. In the rough the FJ80 is supremely confident, although when things get very rough it can be hard on occupants. At speed it is exceptionally stable with steering feel superior to the competition. Fuel consumption of the petrol version is quite acceptable up to 120kph from which point it soars rapidly. (At 150kph I measured a staggering 22 litres per 100 kilometres). On the downside there are no jacking points for a high-lift jack and the spare wheel stowage under the load bay is a pain and can create difficulties in the rough. The FJ80 is built with various types of transmission, from the more familiar part-time four-wheel drive on the GX to full-time four-wheel drive with a lockable centre differential on the VX. With some VX models the spare wheel is stowed on the back door.

Top: The Land Cruiser station wagon FJ55. This one is still operating in Maun Botswana. Middle: 80 Series with series 60 behind. Above: 100 Series. Following page top: FJ80 Following page bottom: 100 Series GX on Cape West coast dunes

The 100-series, launched mid 1998, is a development of the 80 retaining the solid axles on coil springs on the GX but going to independent front suspension on the VX. The GX is now aimed at the user, the off-roader who may demand the very best in off-road performance. To this end the GX is fitted with front and rear axle diff locks coupled to a full-time four-wheel drive system and a lockable centre diff. A spare auxiliary fuel tank is also fitted. The

TOYOTA LAND CRUISER STATION WAGON 60 AND 80 SERIES

	FJ 60 Petrol	FJ 80 Diesel	FJ 80 Petrol
ENGINE			
Fuel	petrol	diesel	petrol
Cylinders/Configuration/cm ³	6 in-line/4230	6 in-line/4164	6 in-line/4477
Max. power (DIN) kW at RPM	n/a	96 @ 4000	145 @ 4400
Max. torque (DIN) N.m at RPM	n/a	280 @ 2000	363 @ 2800
TRANSMISSION			
FJ 60 and FJ80GX: 5-speed manual or 4-speed auto part time four-wheel drive with manual free-wheel hubs.			
FJ80 VX : 5-speed manual full-time four-wheel drive with a lockable centre differential. All models have two-ratio transfer gearbox.			
Differential lock/s	none	none	centre
SUSPENSION			
FJ 60 Front and Rear: Rigid axle with semi-elliptic leaf springs, shock absorbers.			
FJ 80 Front and Rear: Rigid axle with coil springs, shock absorbers, stabiliser bar.			
DIMENSIONS			
Wheelbase (mm)	2980	2850	2850
Ground clearance (mm)	185	235	235
Fuel tank capacity (litres)	90	95	95
GVM	2070	2960	2960
Tyres	7.00 X 16	275/70 R16	275/70 R16
Load tie-down rings	no	no	no
Std body suitable for high lift jack	yes	no	no

TOYOTA LAND CRUISER STATION WAGON 100 SERIES

	FJ100 GX	FJ 100GX	FJ100 VX
ENGINE			
Fuel	petrol	diesel	diesel turbo
Cylinders/Configuration/cm ³	6 in-line/4477	6 in-line/4164	6 in-line/4164
Max. power (DIN) kW at RPM	165 @ 4600	96 @ 3800	150 @ 3400
Max. torque (DIN) N.m at RPM	387 @ 3600	285 @ 2000	430 @ 1400
TRANSMISSION			
GX: 5-speed manual or 4-speed full-time four-wheel drive with two-ratio transfer gearbox.			
VX: 4-speed auto full-time four-wheel drive with a lockable centre differential. All models have two-ratio transfer gearbox.			
Differential lock/s: GX has centre, front and rear locks. VX has centre and rear locks.			
SUSPENSION			
GX Front and rear: Rigid axle with coil springs and shock absorbers.			
VX Front: Double independent wish bones, torsion bar and shock absorbers.			
VX Rear: Rigid axle with coil springs and shock absorbers. Self-levelling air-suspension on some imported models.			
DIMENSIONS			
Wheelbase (mm)	2850	2850	2850
Ground clearance (mm)	215	215	215
Approach angle (degrees)	34	34	34
Departure angle (degrees)	26	26	26
Fuel tank capacity (litres)	96+45	96+45	96
GVM	3160	3160	3260
Tyres	275/70 R16	275/70 R16	275/70 R16
Load tie-down rings	yes	yes	yes
Std body suitable for high lift jack	no	no	no

GX is a masterpiece. It's big, very big, but the balance of on-road comfort and speed coupled with loadability, good range and off-road performance is superb. Its drawback off-road is clearance between the axles and a spare wheel stowage



under the loadbay. Models to be launched in 1999 will correct the spare wheel position but the clearance shortcoming can only be corrected by a heavy-duty suspension system, the Old Man Emu system working particularly well. Engine options with the GX are the familiar 4,5-litre 6-cylinder but now with fuel injection and a 4,2-litre normally aspirated diesel. The diesel is a little underpowered but not to a point where the vehicle is unpleasant to drive. Those considering fitting an after-market turbo, be aware that although this is a worthwhile modification, gearing falls short and performance does not match that of the VX.

The VX challenges the 4x4 limousine market and tackles the Range Rover and Mercedes M-class head-on. In South Africa the VX comes with 4,2-litre turbo-diesel engine and automatic transmission. The engine is the smoothest and quietest diesel I have ever driven and produces massive torque well under 2000 rpm. Off-road this engine is beyond compare for flexibility. Interior equipment ranges from electric seats to an electric sunroof. If you are considering a grey-import Land Cruiser, I recommend you read the pros and cons of such imports in chapter one.

The best part about the 100-series which is a personal observation - this is a very good looking machine.



VOLKSWAGEN SYNCRO BUS

A four-wheel drive adaptation of the very popular rear-wheel drive minibus is no longer made but second-hand units are available. There are two versions: the standard 'Microbus ' and the Caravelle luxury version. Both have a 2.1-litre fuel-injected 4-cylinder engine. Advanced 4WD is permanent using a hydraulic viscous coupling between the front and rear propshafts. Suspension is by independent coil springs on all four wheels. Modifications for off-road use include protective plates, a single low gear ratio for off-road work and raised suspension. The Syncro's performance over uneven ground is impressive because of excellent vertical wheel travel and axle differential locks which can be engaged on the move.

The Syncro is seriously disadvantaged when conditions get muddy, because of its small wheels, road tyres which clog very quickly and low ground clearance. The engine is low slung and this is a problem both when wading and when the vehicle is being driven over uneven terrain. The levels of exterior finish and interior comfort are very high.



FRANCOIS ROSSOUW

VOLKSWAGEN SYNCRO BUS 4X4 2.1 LITRE

ENGINE

Fuel	petrol
Cylinders/Configuration/cm ³	4 horizontally opposed/2109
Max. power (DIN) kW at RPM	82 @ 4800
Max. torque (DIN) N.m at RPM	174 @ 2800

TRANSMISSION

Type: 5-speed manual full-time four-wheel drive with hydraulic viscous coupling. Single speed low gear for off-road work.

SUSPENSION

Front: Independent wishbones and coil springs and shock absorbers.

Rear: Independent diagonal arms and coil springs and shock absorbers.

DIMENSIONS

Wheelbase (mm)	2455
Ground clearance (mm)	193
Fuel tank - capacity (litres)	70
Mass Tare	2500
Mass payload (kg)	848
Tyres sizes front and rear	205 SR14
Std body suitable for high lift jack	no

4. SPECIALISED AND UNUSUAL VEHICLES

In this section: Beijing Jeep, Land Rover Forward Control, AMC Hummer, Uaz, Toyota Mega Cruiser. Mercedes Benz Unimog.

BEIJING JEEP

If you want to see a crude vehicle, take a look at the Beijing Jeep! It makes the Lada Niva look highly sophisticated. A small number were imported into South Africa and nowhere on earth are they worse suited. They are unreliable and spare parts are not available. No longer available, they are an excellent example of a vehicle imported into the country by someone looking to make a fast buck.



LAND ROVER FORWARD CONTROL

In 1962, a very different Land Rover was introduced - the Land Rover Forward Control. The original wheelbase was 109 inches and this was increased to 110 inches in 1966. It was born of the need for more space and higher payload. Unless a totally new vehicle was to be produced, forward control was the only way to increase load bay length without drastically changing the chassis. The vehicle has a curb weight of 1 973 kgs and a maximum permissible vehicle weight of 3636 kgs, 568 kgs more than a conventional Land Rover. Combined with massive ground clearance and huge 9.00/16 inch tyres, the vehicle had superb off-road performance. Never as versatile as a standard Land Rover, the Forward Control had limited popularity and production ceased in 1977. Many examples of the Forward Control found their way to Southern Africa, most through the South African and Rhodesian armed services and a few through aid organisations. They were used as troop carriers, ambulances and communications vehicles throughout the border conflicts from the '60s through much of the 80's.



HUMMER

In late 1979 a subsidiary of American Motors Corporation, AM General began development of a High Mobility Multi-purpose Wheeled Vehicle, or HMMWV (pronounced humvee). The US Army awarded AM General a prototype contract in 1981 which was followed by development and testing lasting four years. Since then over 150 000 HMMWV's have been produced for the US armed forces. The vehicle gained international recognition in the Gulf War when it won the hearts of the infantry men that drove it. For South Africa the



Hummer is a showpiece and not a workhorse. This is because it is too wide for sand tracks and trying to drive in sandy conditions in heavy bush is very frustrating. It is powered by a 6.5-litre V8 turbo-diesel engine couple to a four-speed auto transmission. The one pictured is a five door station wagon model imported by Safari Centre in 1998.

UAZ

Visitors to Mozambique may be familiar with these vehicles - Russia's "working man's 4x4". These vehicles are as basic as you can get. The Uaz 31512 is the all-purpose workhorse, seven seats with a payload of only 100kgs while the 33035 is the load carrier, with a payload of only 800kgs! They are both powered by a 2,4-litre 4-cylinder petrol engine producing 66,9 kW and have all-round drum brakes. There are seven derivatives of the 33035.

*Top: Uaz31512
Bottom: Uaz 33035*



TOYOTA MEGA CRUISER

Similar in appearance to the American Hummer, the Mega Cruiser is a mammoth 5-metre long, 2.1-metre wide, 10-seater station wagon. Its off-road abilities are extraordinary as it floats over obstacles that would stop the average off-roader. Suspension is independent torsion bars on all four wheels, portal axles, an immensely torquey 4-cylinder, 4.2-litre turbo-diesel engine, automatic transmission and a system which deflates and inflates the rear tyres while on the move. The only criticism that can be fairly levelled at it is that if you are going to be so extravagant when designing a 4x4, why not go all the way with tyre inflation systems on all four wheels like the Hummer? Launched in mid-1996 the Mega Cruiser is available in South Africa for about R800 000.



MERCEDES BENZ UNIMOG

Often referred to as the ultimate expedition vehicle, the Unimog has earned this reputation through years of service not just impressive looks. The second series of Unimog is a marked improvement over the old, with better seating, interior comforts, lower noise levels and easier serviceability. The Unimog is nothing short of phenomenal off-road but it will get stuck in mud. Its portal axles mean that ground clearance is so good that the wheels will sink very deep before it gets stuck. When it does, extraction can be impossible with regular winch gear. In these cases, another Unimog or a bulldozer may have to be called to the rescue.

