



RANGE ROVER



HIDDEN FEATURES

An Internal Look at a Rather Exceptional Vehicle

A HERITAGE OF QUALITY

Range Rover vehicles are built in Solihull, West Midlands, England by Land Rover U.K. Limited, the only dedicated 4 x 4 manufacturer in the world.

Range Rover occupies an exceptional position in the automotive spectrum. It combines exceptional four-wheel-drive capability with the performance, comfort and abundant amenities of an elegant, European road car.

It has been described as 'a unique blend of luxury car, performance car, station wagon and cross-country performance car.' While it is certainly all of those things, it is first, last and always a rugged and authentic off-road vehicle.



 **RANGE ROVER**



This folder has been designed to show the internal components of the Range Rover. The photographs are of a specially painted chassis.

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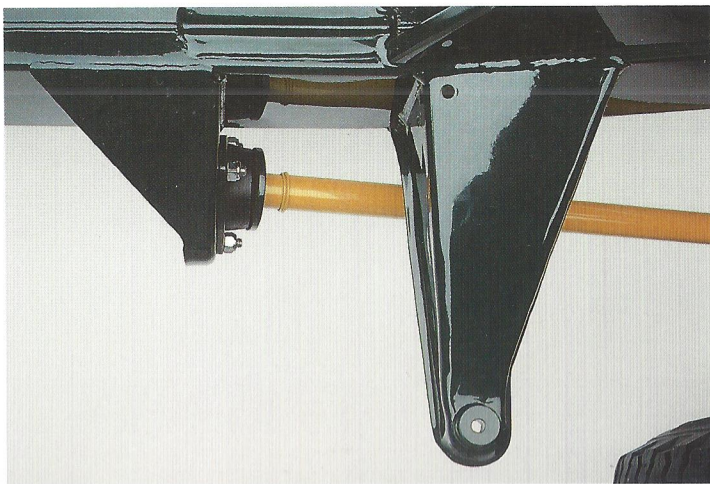
All specifications are based on latest information available at time of printing. Vehicles pictured in this manual may vary slightly from actual production models. The manufacturer reserves the right to make changes at any time, without notice, to price, colors, materials, equipment, specifications and models. Details and specifications are further subject to change due to local conditions and regulations and not all models of Range Rovers are available in every market.

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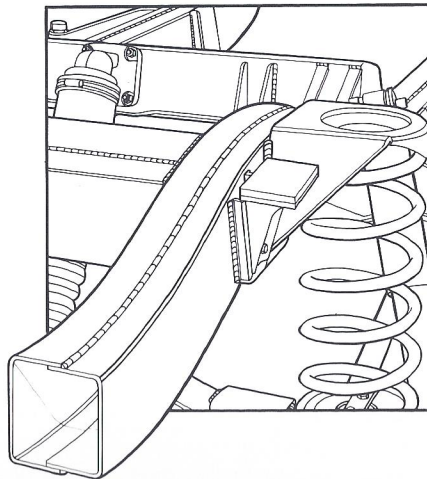
CHASSIS

Range Rover's strength and stability on and off-road is attributable to frame design and placement of driveline components.

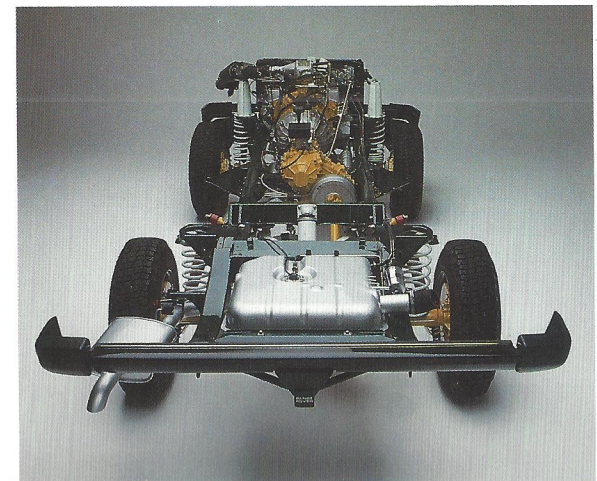
- Welded box section frame
- 14 gauge steel with scroll plates at key points
- Five cross members and front bumper form "Ladder" construction
- Electrophoretically coated with paint, wax injected for corrosion protection.
- Low center of gravity
- Integral Class III trailer hitch receiver welded to frame
- Ten rubber body mountings to isolate noise and vibrations
- Frame protects driveline components from off-road impact and eliminates need for skid plates



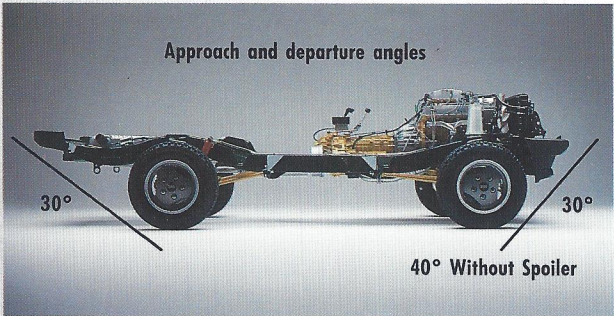
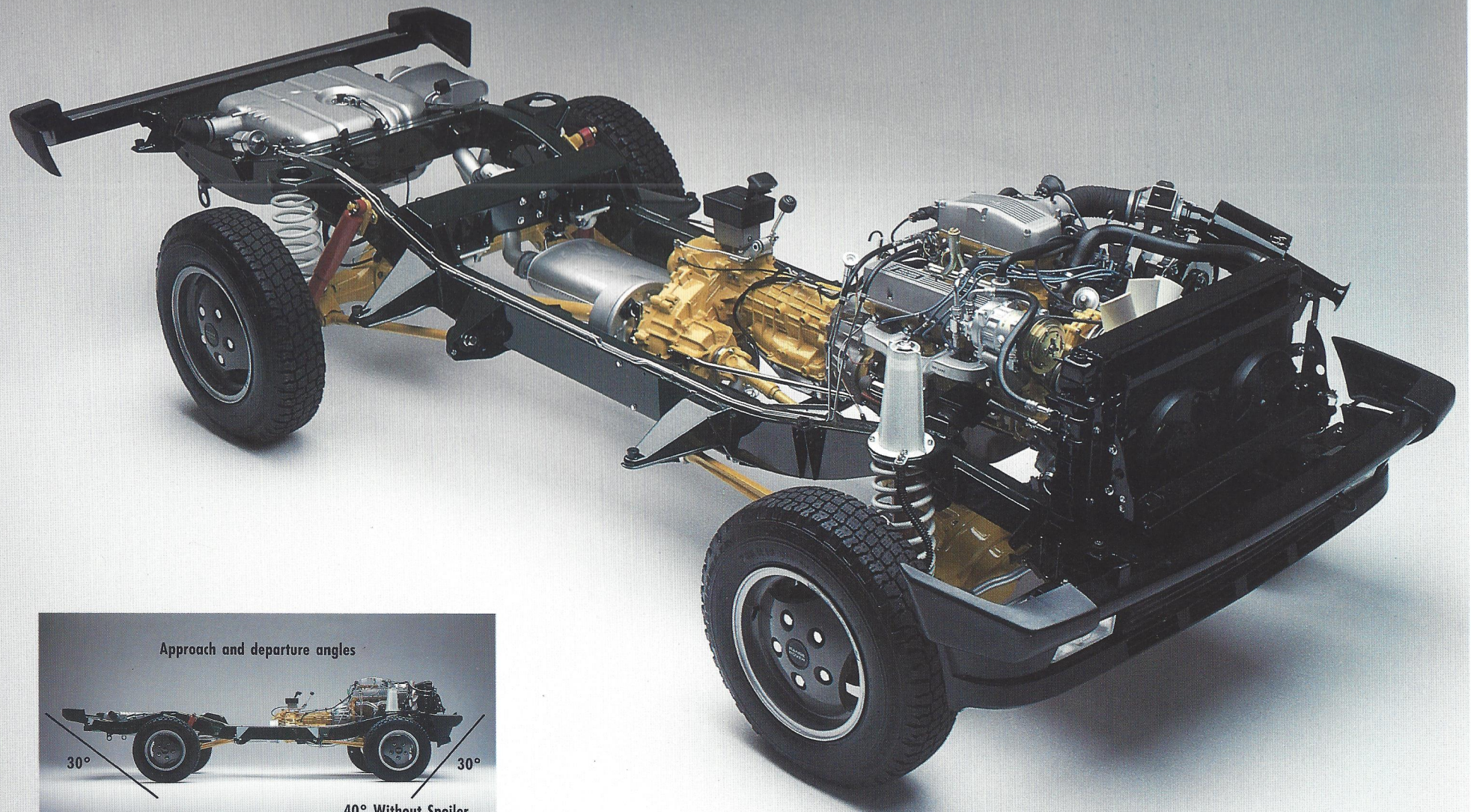
Rubber body mounting point



Welded box section chassis



Ladder frame design



CHASSIS

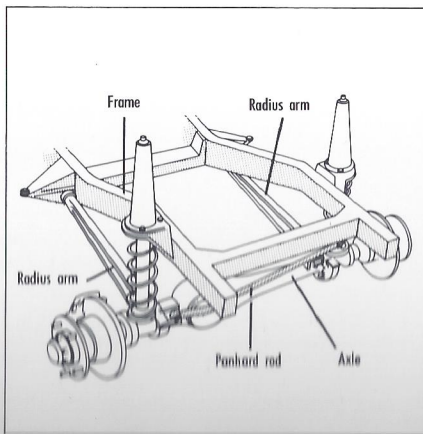
SUSPENSION

Range Rover's suspension provides good ground clearance and excellent vertical axle movement on rough ground; yet still affords smooth comfortable ride under highway driving conditions.

Front Axle

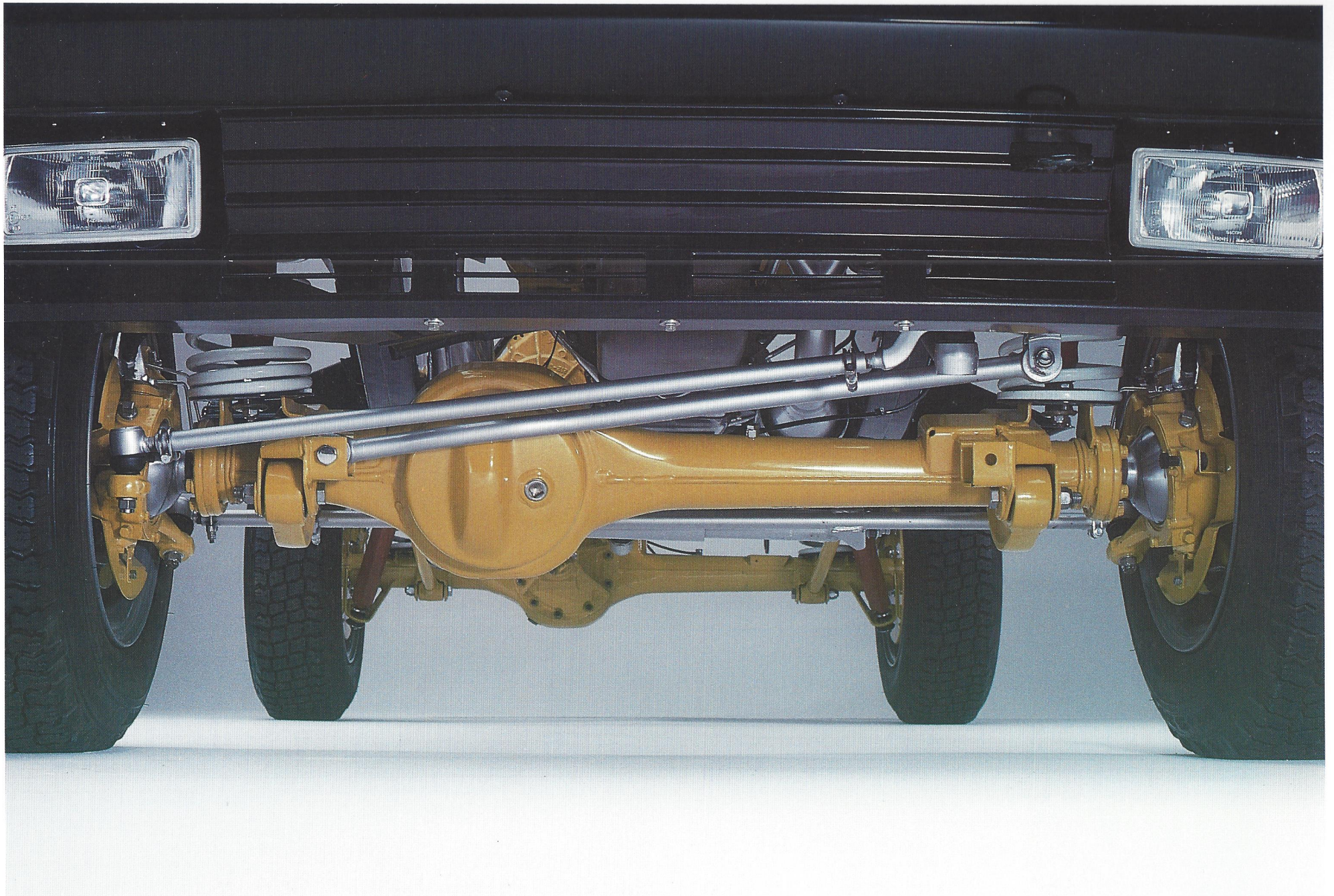
- Beam axle design protects moving parts
- Three piece axle assembly
- Fully floating axle shafts
- Fully enclosed constant velocity (CV) joints
- Beam axles typically permit better ground clearance than with independent suspension. 8.0 inches under differential; 11.7 inches under axle
- Spiral bevel type differentials. Differential ratio is 3.54:1.
- Axle located (fore & aft) by radius arms, laterally by a Panhard rod.

Front axle assembly



Suspension system allows for full axle articulation



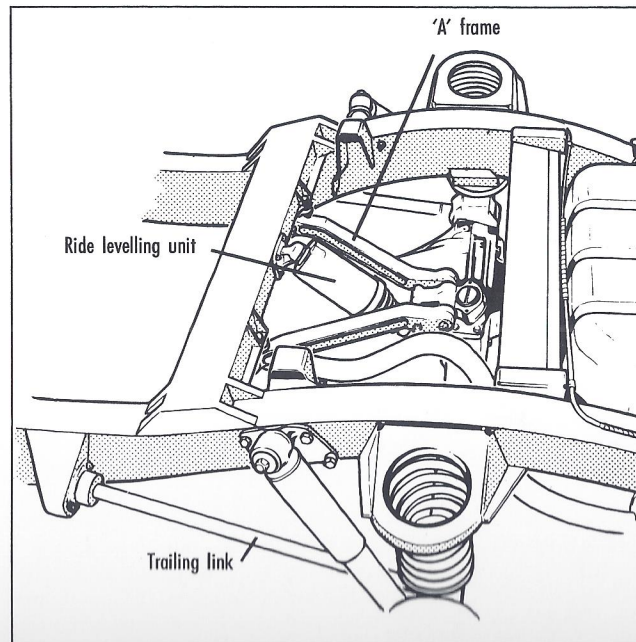


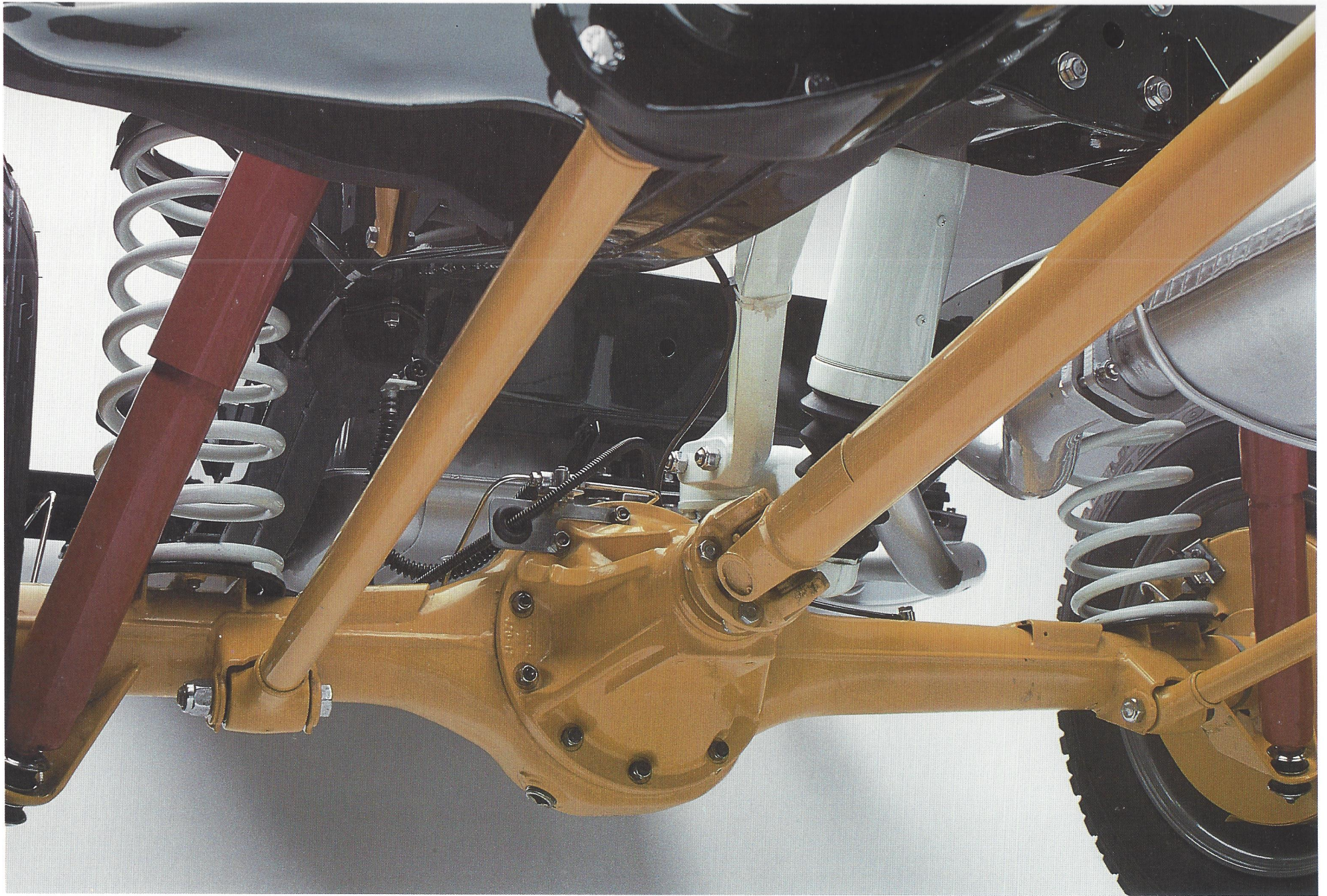
FRONT AXLE

Rear Axle

- Beam Axle design protects moving parts
- Fully floating axle shafts
- Spiral bevel type differentials. Differential ratio is 3.54:1.
- Rear axle located (fore & aft) by trailing links, laterally by a centrally mounted "A" frame.

REAR AXLE ASSEMBLY



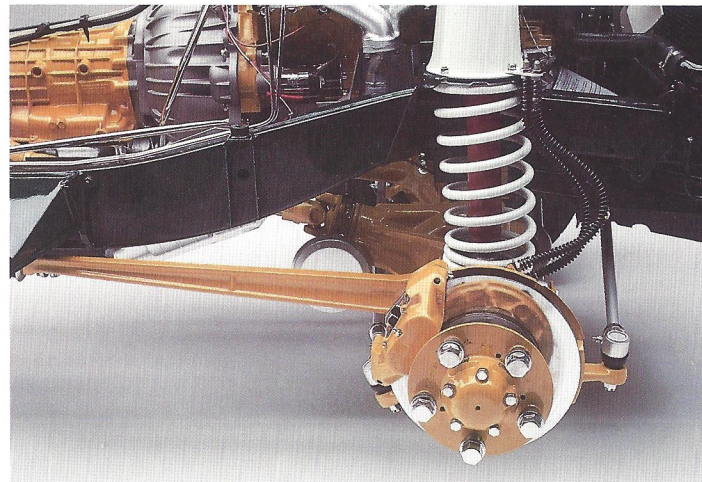
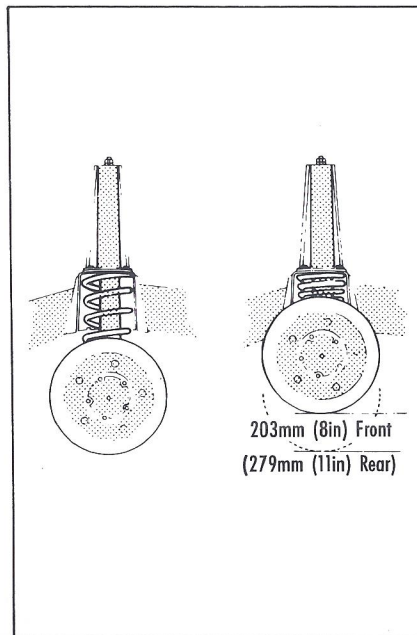


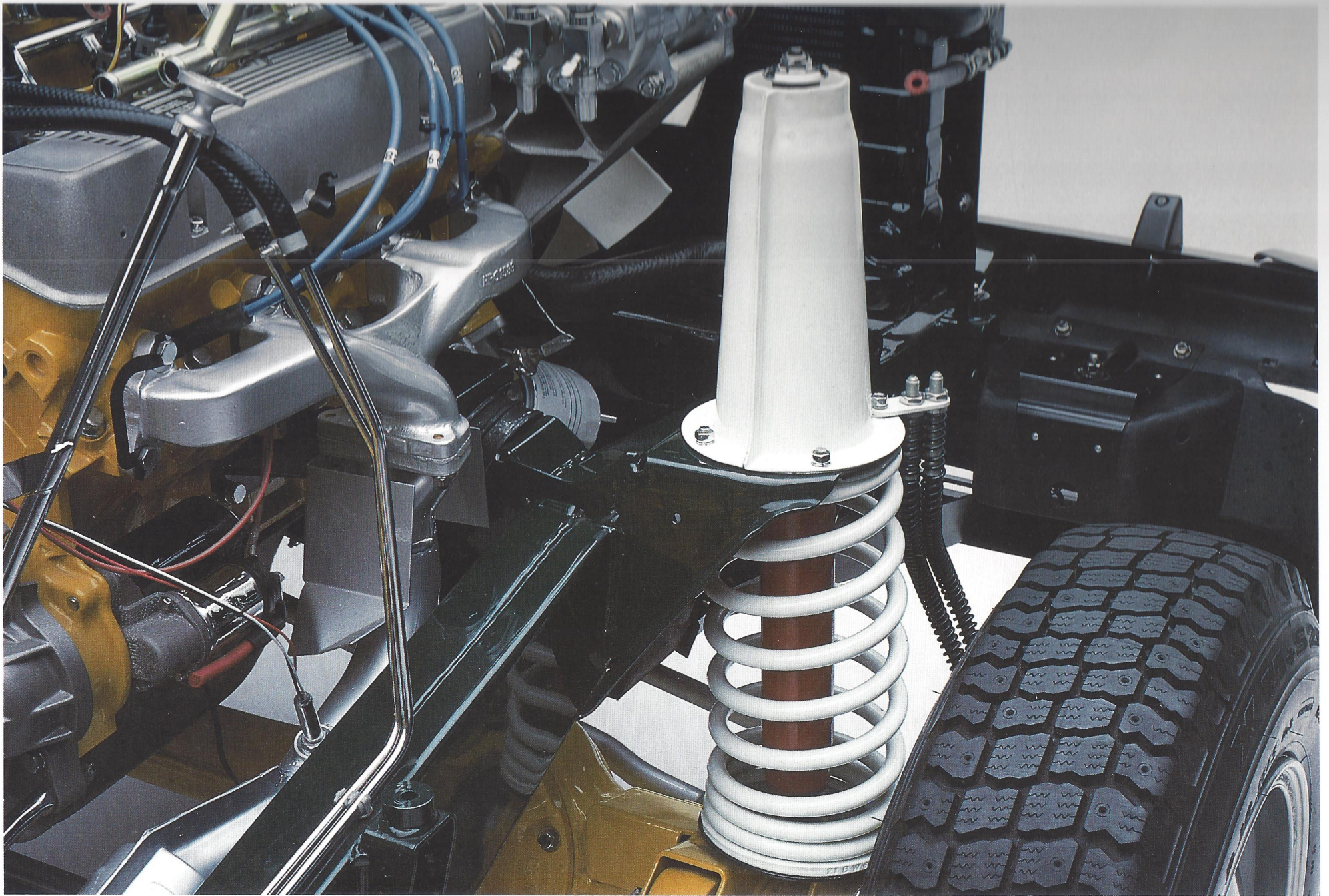
REAR AXLE

Front Springs & Shocks

- Long travel coil springs
- Single rate front springs — 133 lb/in
- Double acting shock absorbers
- Excellent wheel travel: 8 inches front

SUSPENSION TRAVEL

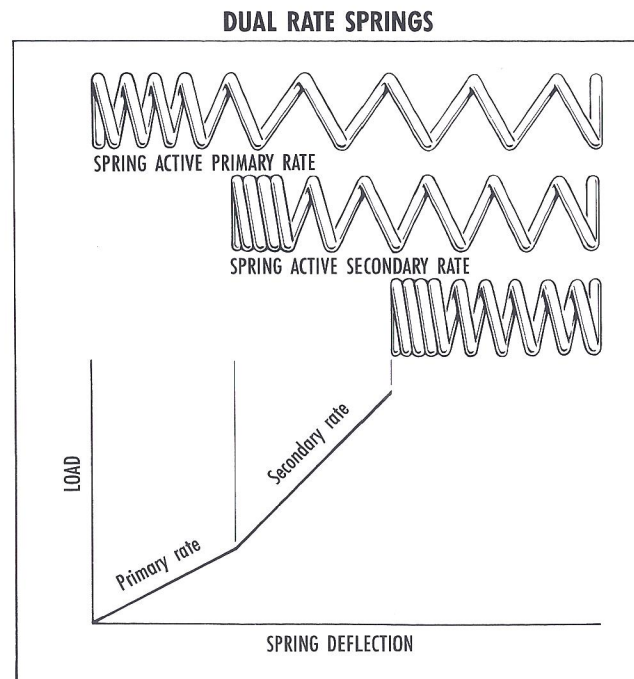


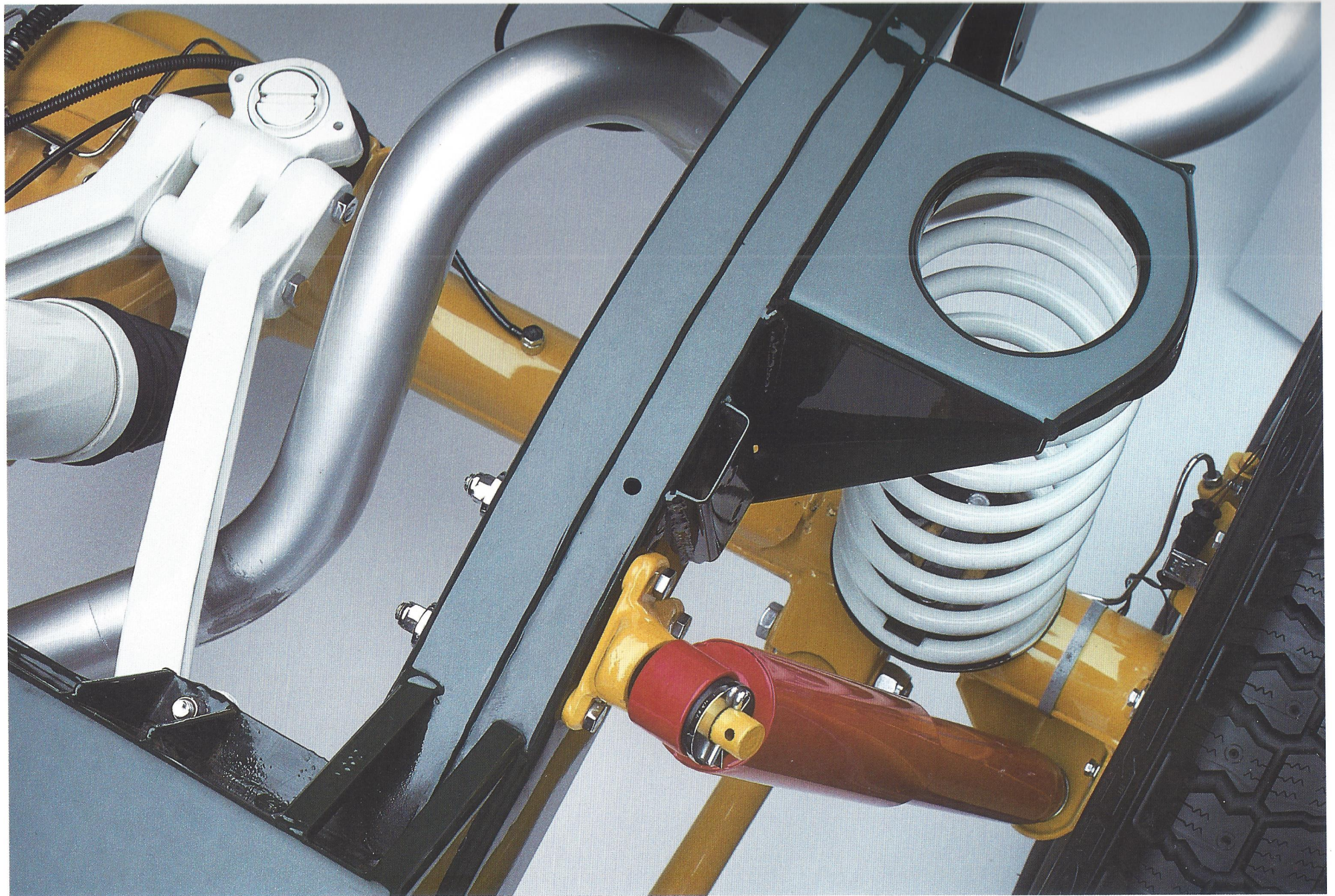


FRONT SPRING & SHOCK

Rear Springs & Shocks

- Long travel coil springs
- Dual rate rear — 127 lb/in & 180 lb/in
- Double acting shock absorbers
- Excellent wheel travel: 11 inches rear

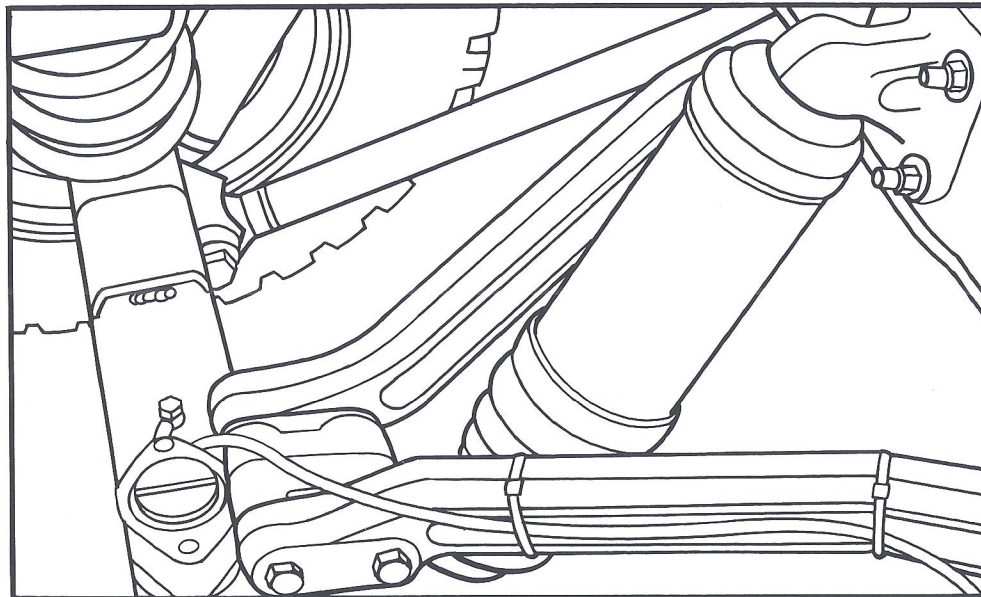




REAR SPRING & SHOCK

Ride Levelling Unit

- Boge-Hydrumat ride levelling device is unique among 4×4 vehicles
- Maintenance free, self-energizing unit on rear axle to assist in maintaining a level vehicle attitude under normal load conditions
- Driving short distance causes unit to pump itself up
- Relieves compression on rear springs, supports part of rear axle load, restores full axle articulation
- An internal relief valve is built into the ride levelling unit to prevent damage should the vehicle be overloaded.



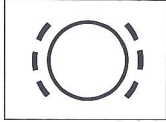


RIDE LEVELLING UNIT & CENTRAL "A" FRAME

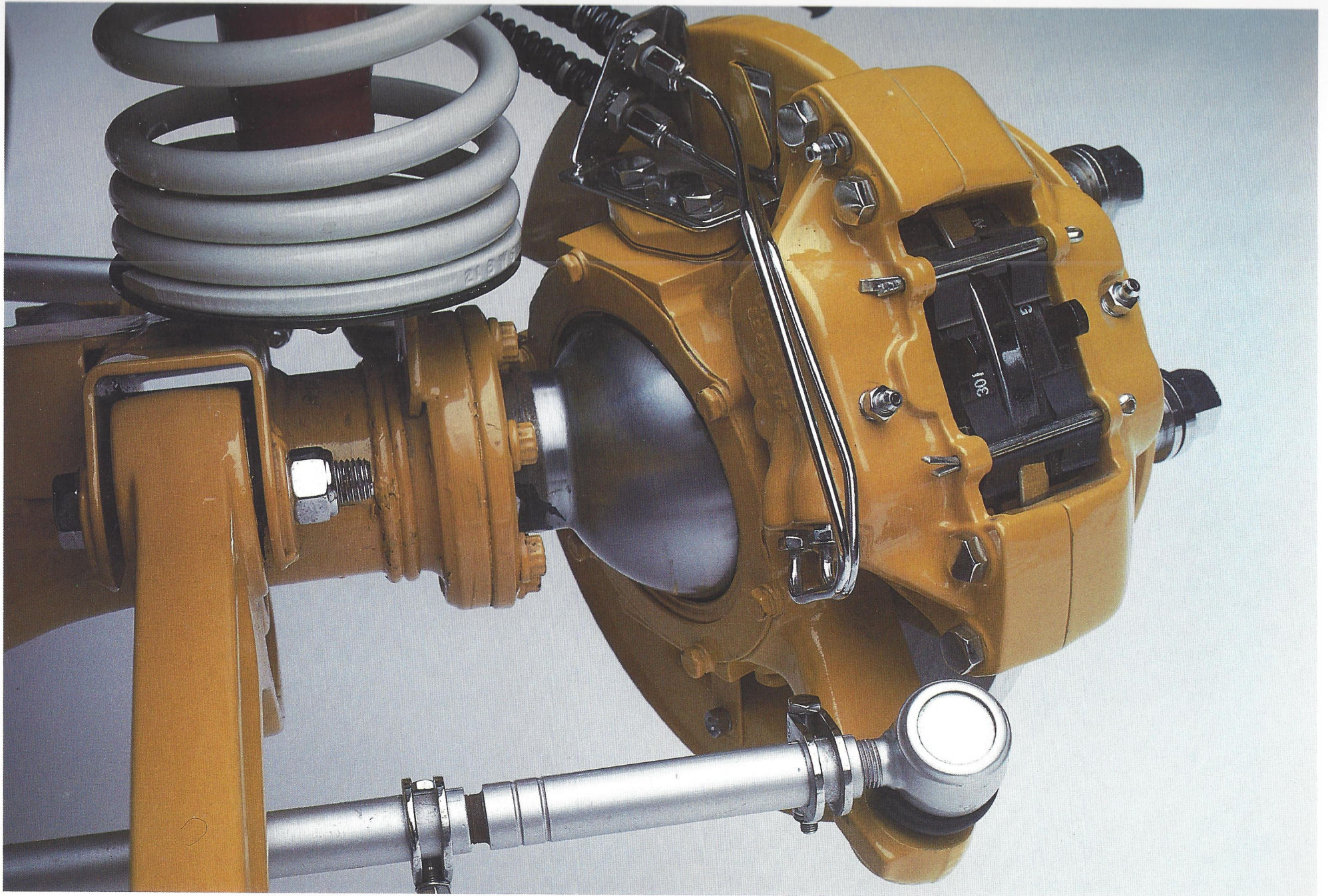
BRAKES

For a vehicle as powerful as the Range Rover, a high performance braking system is needed. Therefore, large disc brakes are used on all four wheels.

Power Disc Brakes

- Range Rover was the first 4×4 sport utility vehicle to employ power disc brakes on all four wheels.
- Large rotors are utilized: 11.75 inches diameter front, 11.42 inches diameter rear.
- Partial dual circuit system
- Brake pad wear indicators with instrument panel warning light 
- System utilizes a Pressure Conscious Reducing Valve (PCRV) to reduce the risk of rear wheel lock-up



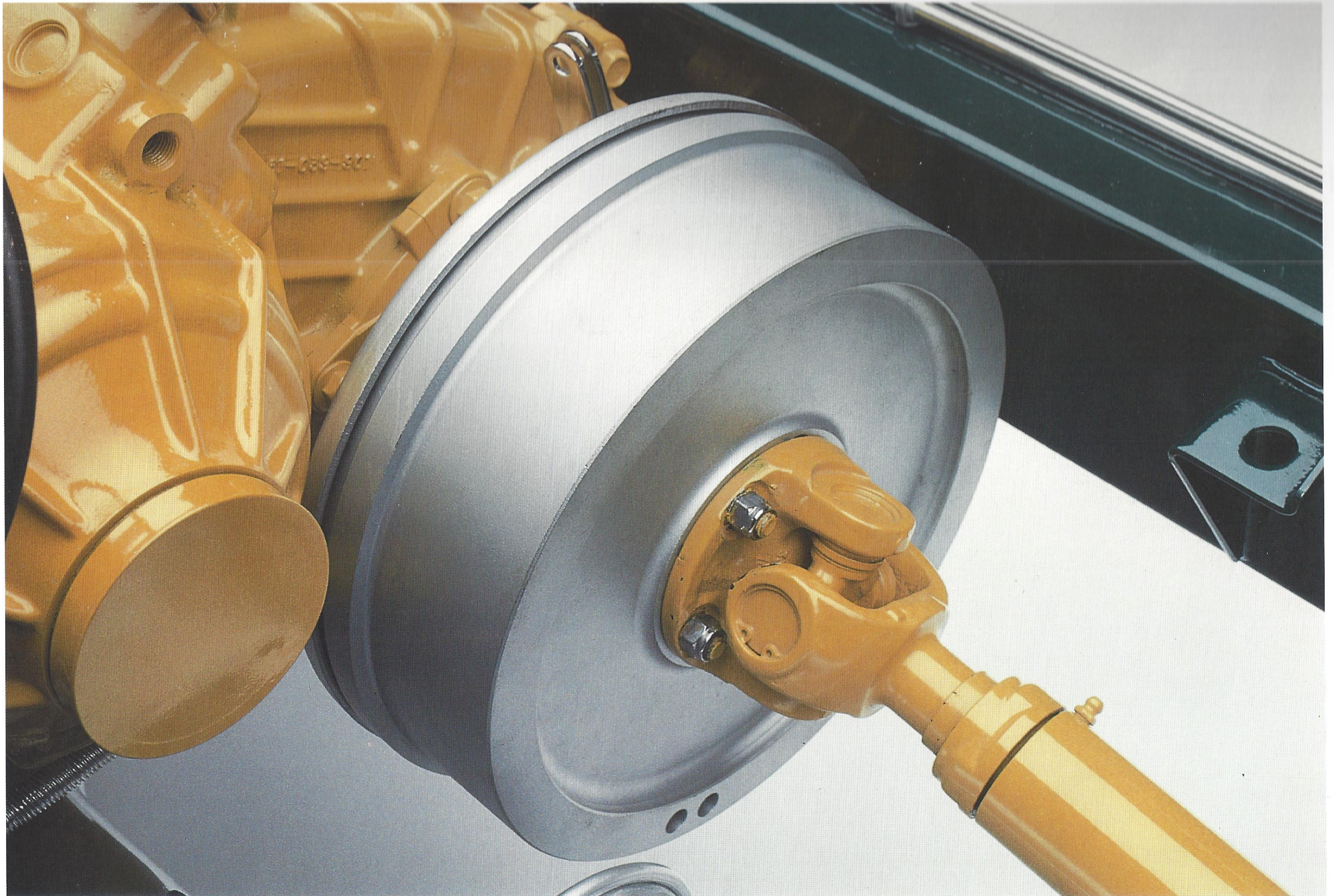


POWER DISC BRAKE

Parking Brake

- Parking brake is shoe type drum, which operates on the transfer case rear output shaft
- Parking brake drum is 10 inches in diameter and contains two 2.75 inches wide brake shoes.
- Short linkage does not hang down under vehicle, reducing danger of being accidentally applied by ground obstruction, bushes, etc.



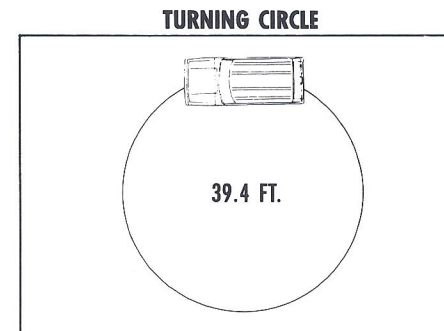
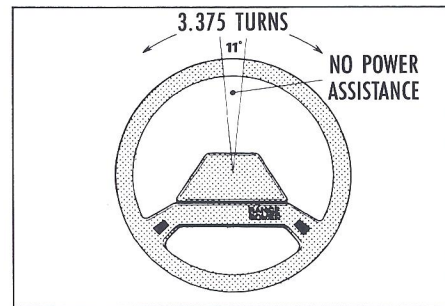


PARKING BRAKE

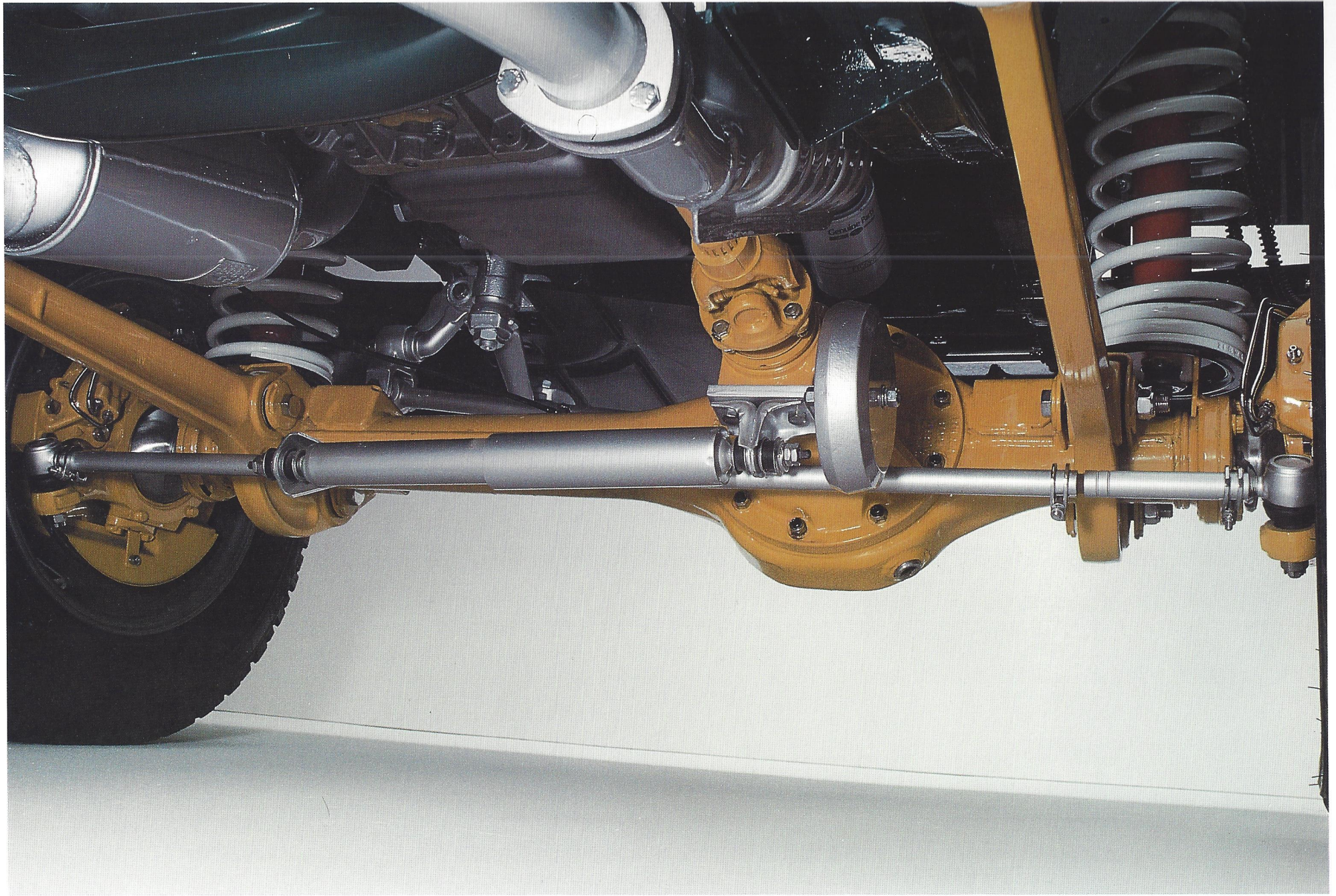
STEERING, WHEELS & TIRES

Range Rover's steering system provides directional stability, positive feel, self centering, small turning circle and low speed maneuverability whether on or off the road.

- Power steering reduces driving effort
- Steering column designed to collapse in event of frontal impact
- Worm and roller design provides positive steering feel and minimizes kickback off-road
- Steering damper helps insulate driver from road shocks being transmitted through steering



- Range Rover is equipped with 7:00 J \times 16 inch cast alloy wheels with 5 stud mounting.
- High speed "S" rated multi-purpose tires are fitted; Michelin XM+S 244 (205 R16) dual purpose tubeless radials
- A conventional spare tire mounted on a cast alloy wheel is provided



STEERING DAMPER

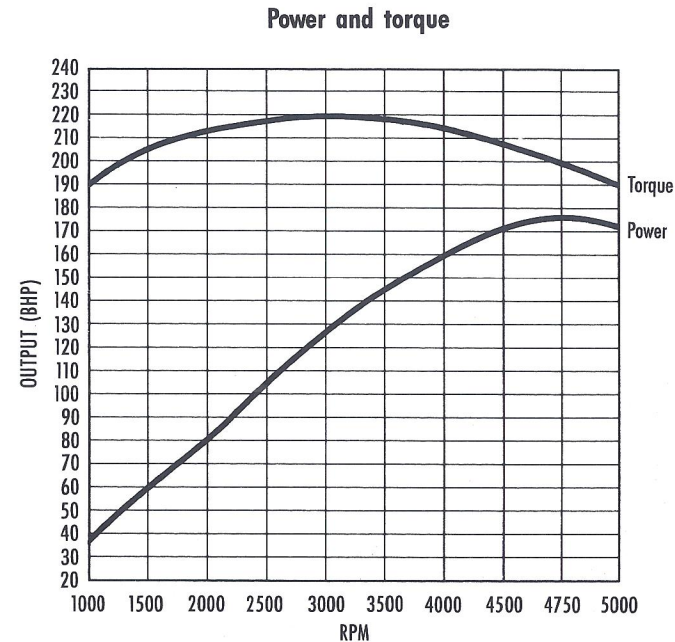
ENGINE

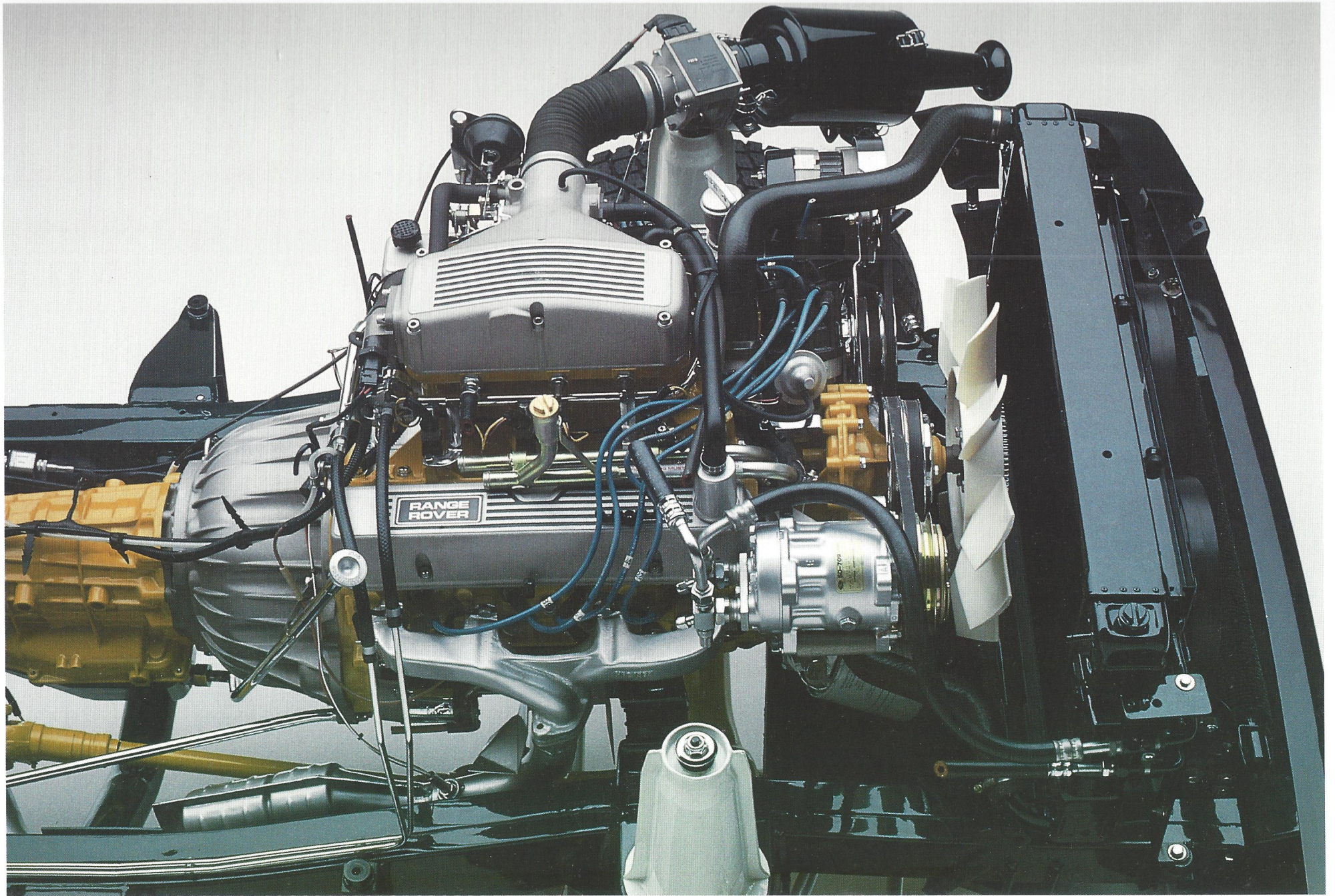
Range Rover's versatile, reliable, quiet running 3.9 litre aluminum V8 engine is well matched to the vehicle by furnishing low end torque for negotiating tough terrain and ample power to handle everyday driving.

Specifications	
• Displacement	3.9 Litre, 3948cc (241 cu. in.)
• Bore	3.7 in.
• Stroke	2.8 in.
• Comp. Ratio	8.13:1
• Max Power	178 BHP @ 4750 RPM
• Max Torque	220 ft. lbs. @ 3250 RPM

Performance	
0-60	10.9 sec.
1/4 mile	18.0 sec.
top speed	110 MPH

- Engine is built by Land Rover Ltd.
- Weighs 60% less than cast iron equivalent
- Hydraulic Tappets
- Multi-Point Electronic Fuel Injection
- "In Tank" Fuel pump
- Designed to run on 90 CLC (AKI) octane unleaded gas
- High Energy Electronic Ignition
- Engine is equipped with a viscous coupled cooling fan
- Factory engine testing on "test bed" and "rolling road"





3.9 LITRE V8 ENGINE

TRANSMISSION/FOUR-WHEEL DRIVE SYSTEM

Range Rover utilizes a permanent four-wheel drive system which it helped pioneer. The 4×4 system, teamed up with the smooth operating four-speed automatic transmission, provides optimum control under changing driving conditions with a minimum of driver effort.

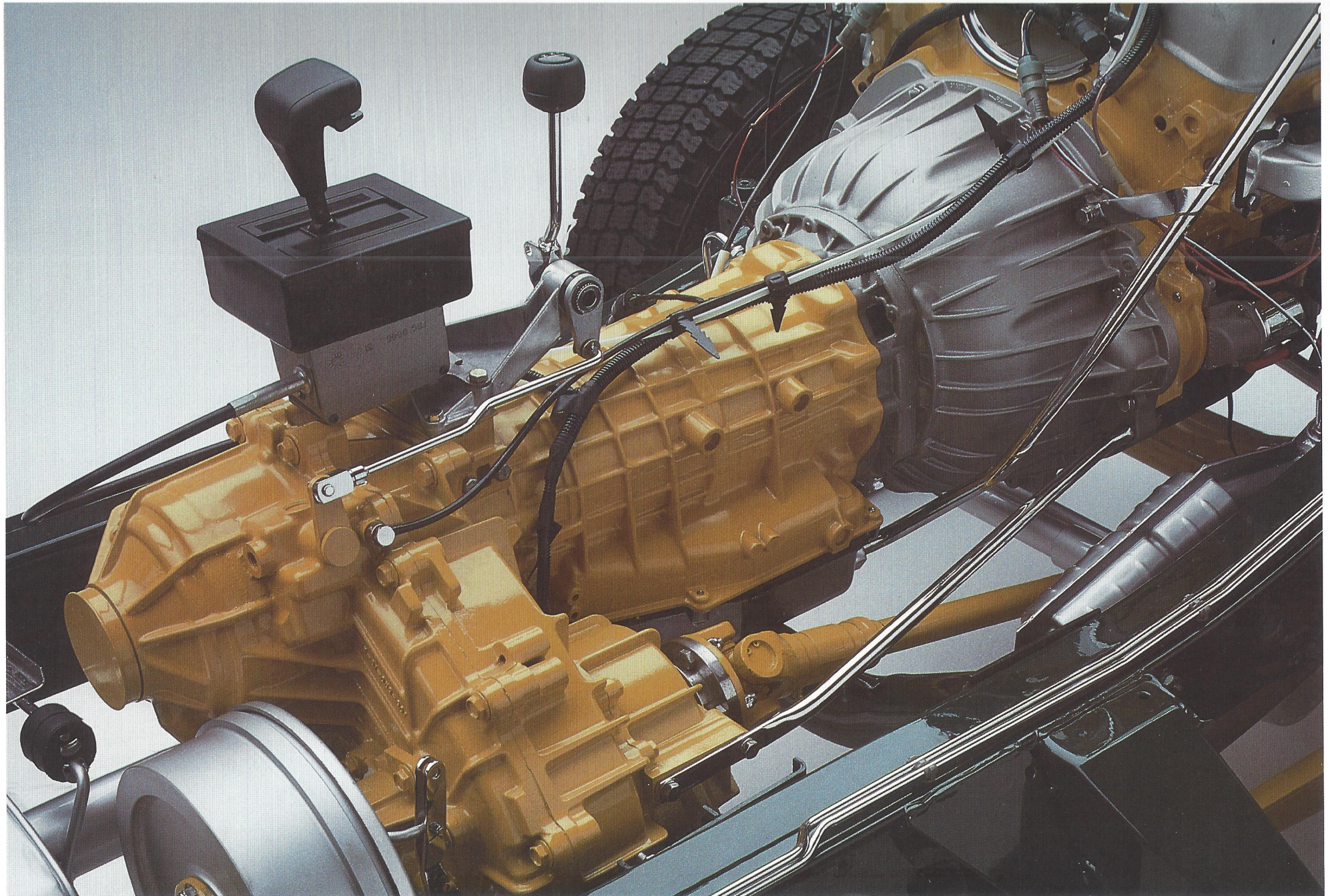
Transmission

- Four-speed automatic (Built by "ZF")
- Console mounted lever with detent button (free movement between "drive" and "3rd" gear)
- Torque convertor lock up in 4th gear for economy (above 51-54 mph)
- Two transmission oil coolers: one in front of radiator, one integrated into radiator
- A combination ventilated front spoiler and air deflector tray channel airflow around transmission and transfer gearbox to reduce component temperatures.

Transmission Gear Ratios	
4th	0.728:1
3rd	1.000:1
2nd	1.480:1
1st	2.480:1
Reverse	2.086:1

Ventilated front spoiler





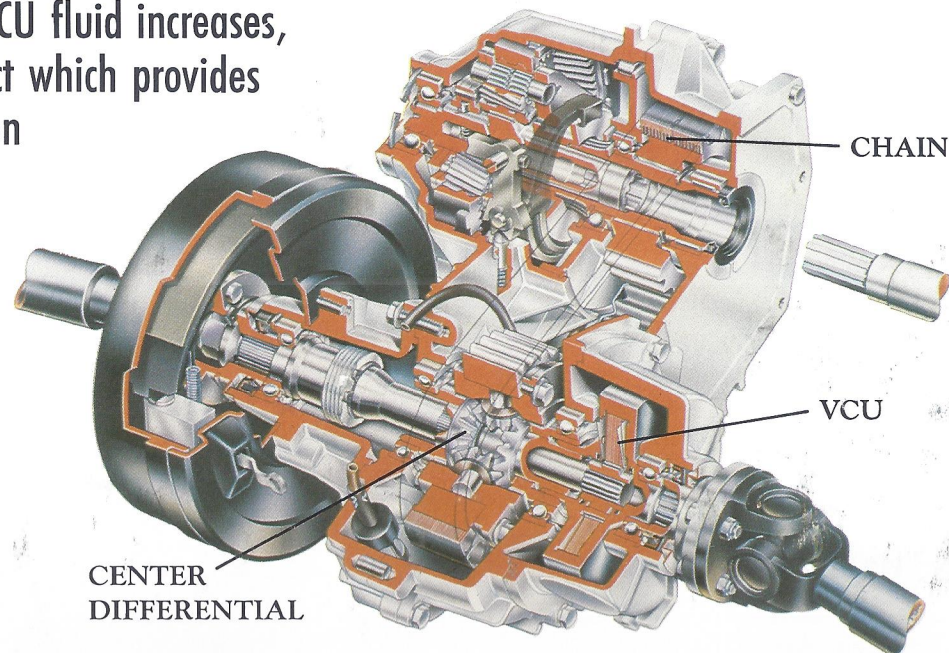
FOUR-SPEED AUTOMATIC TRANSMISSION & TRANSFER GEARBOX

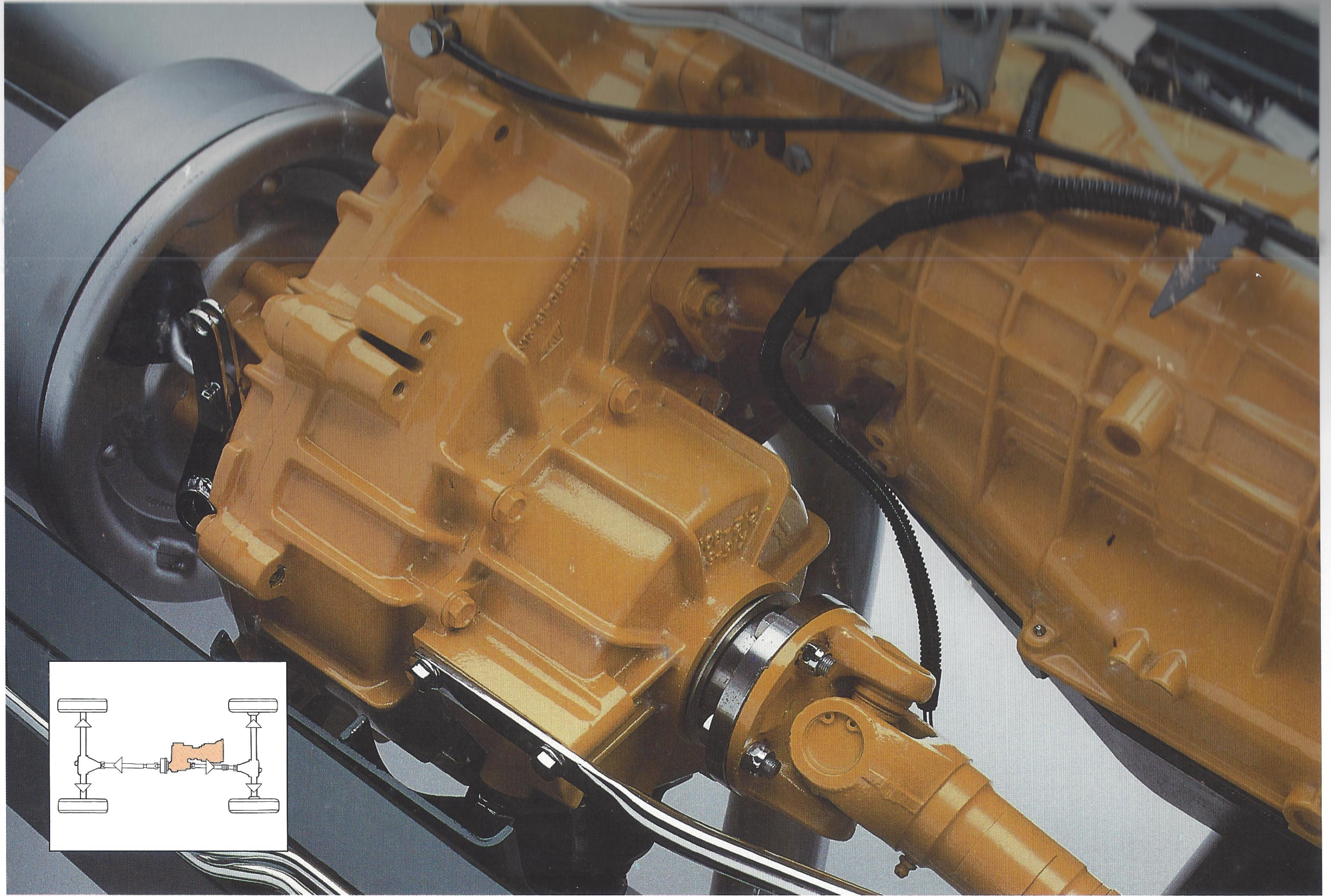
Transfer Gearbox

- Two speed reduction on main gearbox output. (Built by Borg Warner) High and Low ranges.
- Provides a combination of 8 forward and 2 reverse gears

Transfer Gearbox Ratios	
High Ratio	1.206:1
Low Ratio	3.243:1

- Normal on-road operation is in High range. Low range for off-road or towing heavy loads
- Quite, smooth operation, simplest system in industry to operate
- Power is transmitted by a Morse chain and sprocket drive system to front and rear output shafts via a center (inter-axle) differential
- Differential is fitted with a viscous coupling unit (VCU). Upon sensing loss of traction, the viscosity of VCU fluid increases, creating a locking effect which provides equal power distribution (50/50 torque split) to both drive shafts. Once traction is regained, VCU locking effect is reduced automatically.





TRANSFER GEARBOX & CENTER DIFFERENTIAL WITH VCU

TOWING

The Range Rover was designed and built to provide towing capabilities as part of its basic concept. Rather than "hanging on a hitch" as some others do, Range Rover has carefully integrated many diverse elements to produce a rugged, competent tow vehicle.

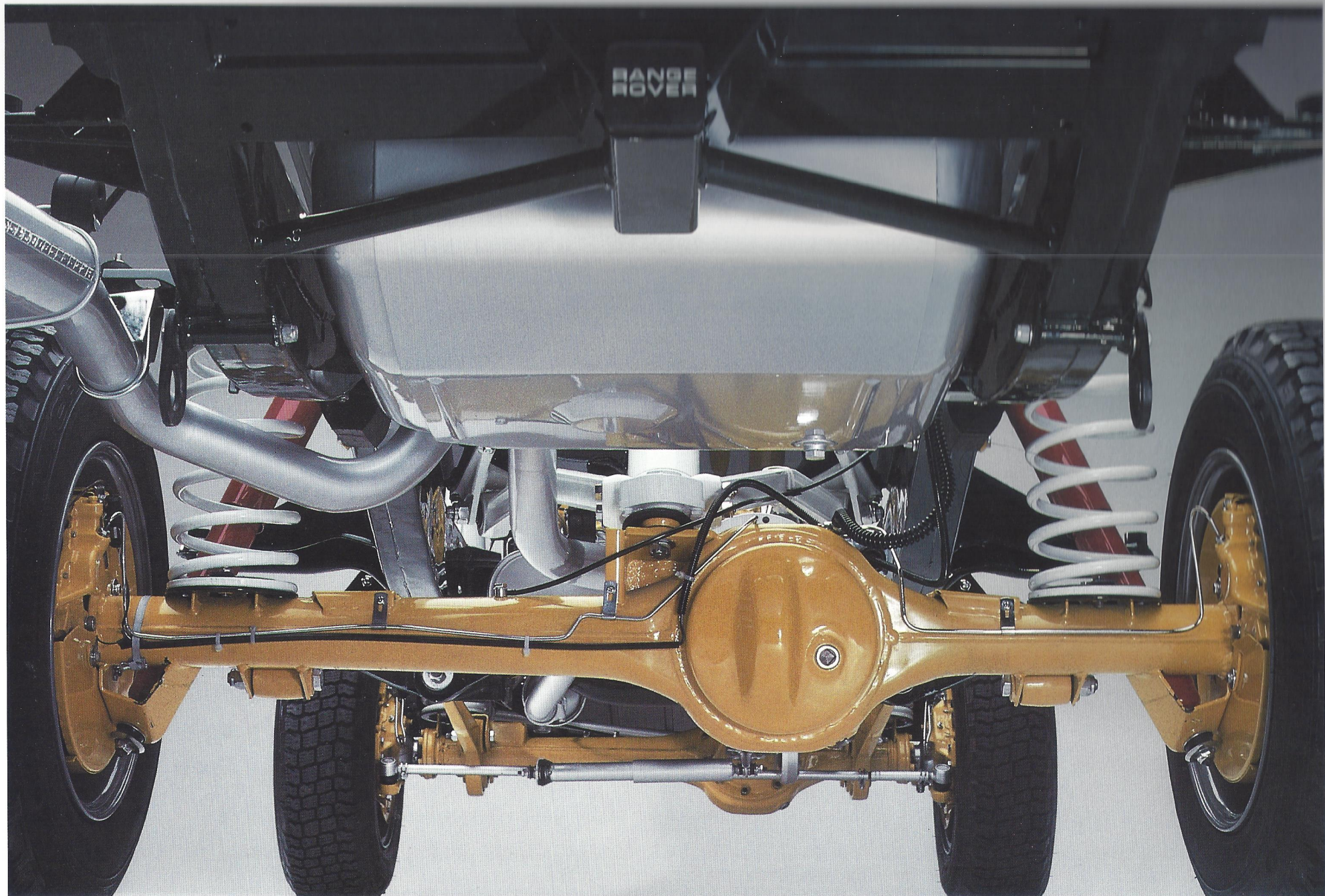
- A strong, rigid box section chassis frame with a stiffened rear cross member designed to handle towing loads.
- A Class III towing hitch receiver, welded to the chassis frame.
- A ride levelling unit to help maintain towing hitch height under a variety of load conditions.
- A fuel injected V8 engine tuned to provide good torque at low engine speeds, a distinct towing advantage.
- A permanent four-wheel drive system to provide maximum traction for towing on all surfaces.
- A transfer gearbox to provide additional gear ratios.
- Two transmission fluid coolers for the four-speed automatic transmission.
- A built in wiring harness for trailer electrical connections.
- A high driver's seating position to provide good visibility when towing.

Towing			
Trailers without brakes:	Maximum weight	Trailers with brakes:	Maximum weights
Off-road	1650 lb.	Off-road	2200 lb.
On-road	1650 lb.	On-road	7700 lb.
		(low range)	
		On-road	5500 lb.
		(high range)	

Tongue weight: 5% to 10% of trailer weight, but not to exceed 550 lbs. Consult owner's manual for towing information.

Vehicle Weights			
	Front Axle	Rear Axle	Total
	lb.	lb.	lb.
Curb Weight	2196	2176	4372
Gross Vehicle Weight	—	—	5997
Max. Axle Load	2535	3572	—

Note: Maximum Axle Weights are non-additive.



CLASS III TRAILER HITCH RECEIVER

OTHER HIDDEN FEATURES

Body

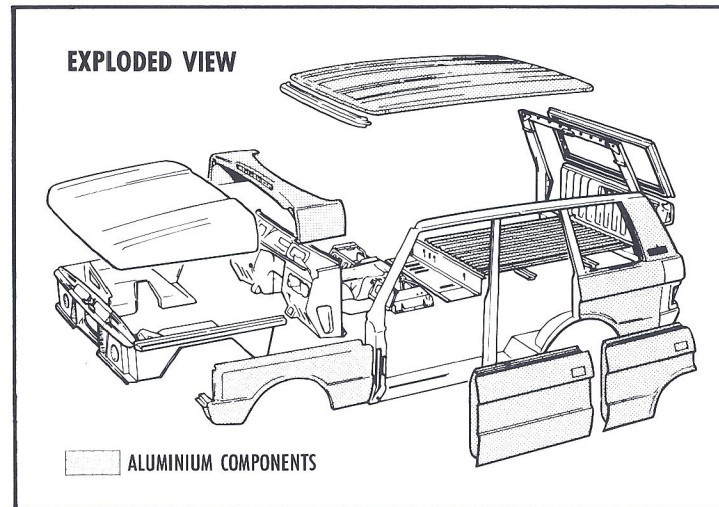
- Body structure based on “steel cage” made up of five preset steel sub assemblies welded together to ensure dimensional accuracy.
- Aluminum outer body panels are bolted to steel cage
- Use of aluminum for most body panels both minimizes corrosion and reduces the overall body weight

Warranty Information

New Vehicle — Limited Warranty
Three (3) years/36,000 miles

Perforation — Limited Warranty
Six (6) years/unlimited mileage
(See Dealer for details)

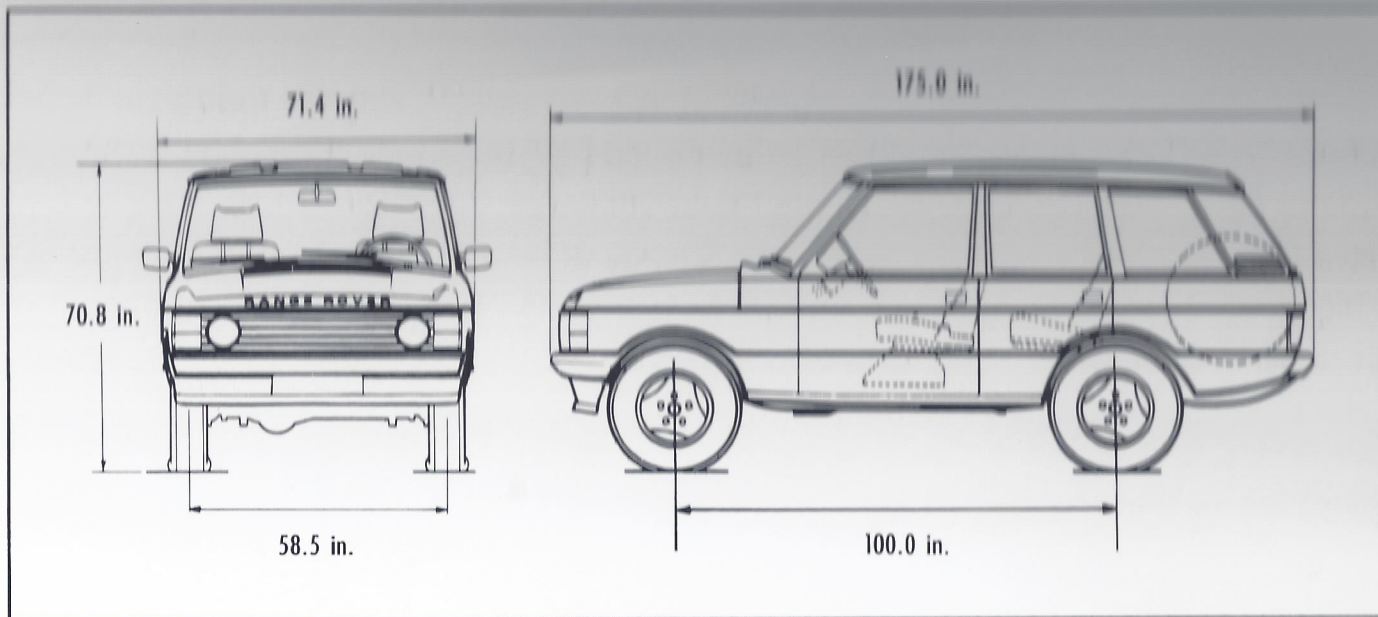
Service Support and Range Rover Road Recovery — Comprehensive service support includes factory trained Service Technician, Field Service Engineers available to answer technical dealer questions, overnight parts shipment and membership in the Amoco Motor Club. Amoco provides 24 hour emergency road and towing service. Program runs length of New Vehicle Limited Warranty.



LAND-ROVER **RANGE ROVER**
ROAD RECOVERY®



TECHNICAL DATA — DIMENSIONS*



Overall length	175.0 in	Rear opening width	51.7 in
Overall width	71.4 in	Rear opening height	40.0 in
Overall height	70.8 in	Front head room	38.4 in
Wheelbase	100.0 in	Front hip room	58.3 in
Track: front and rear	58.5 in	Front leg room	41.0 in
Ground clearance: under		Rear head room	37.3 in
differential	8.0 in	Rear hip room	59.0 in
axle	11.7 in	Rear leg room (min)	32.7 in
frame	14.3 in	Usable luggage capacity	
Front overhang	29.8 in	rear seat in use	36.2 cu ft
Rear overhang	45.3 in	rear seat folded	70.6 cu ft
Angle of approach	30° w/spoiler	rear seat removed	82.8 cu ft
	40° w/o spoiler	Maximum roof rack load	165.0 lbs
Angle of departure	30°	Fuel capacity	20 U.S. gal
Ramp breakover angle	29°	Fuel Economy (EPA Adjusted Figures)	
Loading height	29.3 in	12 — EPA City Est mpg 15 — Hwy Est	
Maximum cargo height	40.0 in		

*To U.S. Standard SAE J1100

RESPECT FOR NATURE

With the freedom afforded by four-wheel drive comes
the responsibility to protect the environment.
Keep four wheeling a positive, safe recreational pursuit.

BUCKLE UP FOR SECURITY



BY APPOINTMENT
TO THE ROYAL
MANUFACTURERS OF
LAND ROVER OF LTD. SOLIHULL



BY APPOINTMENT
TO THE ROYAL AUSTRALIAN
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RANGE ROVER

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