

# ROVER OWNERS' ASSOCIATION



Volume VI, Number 1

February, 1977

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THE NEW ROVER 3500, A STYLISH AND LAVISHLY-EQUIPPED FIVE-DOOR SALOON, LAUNCHED BY LEYLAND CARS ON TO THE EXECUTIVE SECTOR OF THE MARKET.  
Not to be published until 30 June 1976

NEGATIVE  
NUMBER  
265152



Many of you may be wondering about the recent delays in getting the Newsletters out to you. Your editor has been deluged with work recently and has done his best in attempting to keep up with the Newsletter. Our last issue was really a double issue as is this one. We should be back on a more regular schedule from here on out. At least, we hope so.

The new Rover 3500 graces our cover page and there are more pictures, both interior and exterior elsewhere in the Newsletter. We have also reprinted in this Newsletter the DARIEN GAP/RANGE ROVER brochure for those members who never got a copy.

We have an interesting article on our first Honorary member to the Association, Mr. Avery Fisher.

Several members have wrote interesting and informative letters to us regarding their Land-Rover experineces and/or modifications. These are also elsewhere in this issue of the Newsletter.

There have been some delays with regard to our offering, THE LAND-ROVER; WORKHORSE OF THE WORLD. Our initial supply of twenty-five books was sold out almost immediately. We re-ordered in the first week in December and were advised by the publisher that there would be a delay of several weeks. As this copy goes to press we were advised that the books should be forthcoming shortly. We expect to be re-supplied by the time this reaches your hands. However, if you do not receive your book by mid-February please contact us and let us know. We have had at least one case where the book was sent out on December 7, 1976, but still hadn't been received.

We have had a better than average response in offering THE LAND-ROVER; WORKHORSE OF THE WORLD to the membership. However, less than 15% of the membership have actually responded. The book is still available to the membership at 20% off the publisher's retail price. \$10.50 includes the book and postage. It is an excellent book on the Land-Rover; don't pass up this opportunity.

The book, THE ROVER by George Oliver, has been on the market for several years now. We solicited interest from the Association with regard to this book several years ago, but found little or no interest. We do have many Rover owners in the Association as well as Land-Rover owners. If any member is interested in obtaining this book at a similar discount to the Land-Rover book please write us and let us know.

We wonder how well the United States Post Office is serving our needs. Of course, we don't really have a choice as to any other method of sending the Newsletter out, but we are wondering how they are serving us. This Newsletter should be in the post to you by no later than February 4, 1977. We wonder how long it will take to get to you. Drop us a line and let us know. Also, if any member has missed an issue, please advise.

Member Walter C. Banta, Corresponding Secretary of the Land-Rover Owners' Association of Southern California, asked us to advise our membership of their address: P.O. Box 1133, South Pasadena, California, 91030. Dues for their club are \$15.00 per year and benefits of the club are: trips, service/parts info, parts discounts, do-it-yourself tips, free T-shirt with club label, and a monthly newsletter. They are also in the process of preparing a Land-Rover Owners' Handbook. We'll keep you posted on that.

Member Ron Jones of Parthenon Motors Limited, featured in our last issue, has commissioned an artist to do a rendering of a Rover. This pointillistic rendering has been made available to the membership in a limited edition of 100 prints. Cost of this print is \$18.00. Our last page of the Newsletter will carry a sample reproduction.

Lastly, although we had an extensive article and photos on Ron, his interest in Rovers and Parthenon Motors Limited we omitted his address, which is: 204 Dinn Road, San Antonio, Texas, 78218 or phone: 512-653-8000. Ron will take calls any time of the day or night and will return a call if he is not in.



EVERY FISHER MADE AN HONORARY MEMBER OF THE ASSOCIATION: Recently, member Jack Stoekler brought to our attention an article that appeared in the November 10, 1976 edition of the NEW YORK TIMES. It dealt with Mr. Avery Fisher, best-known today as the saviour of the Lincoln Center Concert Hall that bears his name. He is next best-known as a high-fidelity pioneer. Although he is now 70 years old and theoretically retired, his activity shows no signs of letting up. It's just more focused than before, concentrating on music, book design and charitable activities.

Although Mr. Fisher doesn't like to think of himself as a philanthropist, he remains a dominant force in the musical life of New York City. By deliberate plan he concentrates his giving to music. His most recent project was the reconstruction of Fisher Hall at Lincoln Center. Mr. Fisher has given a lot more than money (\$10 million) to Lincoln Center. Mr. Fisher gave his musicologist and acoustician's skills to the Center in the rehabilitation of the Hall.

Although the reconstruction is only the most visible of Mr. Fisher's many musical activities the rest of the Fisher endowment helps to maintain the facility and to keep the fees lower than the laws of economics would otherwise dictate. "Any event that takes place in the Hall is a beneficiary of the endowment in that sense," Mr. Fisher explained. "As the largest user, the New York Philharmonic is the greatest beneficiary."

Mr. Fisher sits on the Philharmonic's board of directors now, as well as those of Lincoln Center, the Marlboro Festival and the Chamber Music Society of Lincoln Center - as well as on various policy-making subcommittees of those boards. And he makes annual bequests to both Marlboro and the Chamber Music Society.

But his abiding love these days, now that Fisher Hall seems finally to be finished, is young musical artists. Twenty per cent of his original endowment to Lincoln Center has been set aside for the Avery Fisher Artist Program. Each year young artists are awarded prizes, which guarantee them prestigious engagements to provide them career momentum when they need it most. Mr. Fisher attends their concerts "religiously", and at least once a month he has some of them over to his home to play chamber music informally.

These musicals rarely involve more than 25 people - five or six musicians, their spouses, Mr. Fisher, his wife and a few friends. Some of the best-known musicians in town, young and not so young, have participated in these affairs; if anything aside from Fisher Hall itself qualifies Mr. Fisher for the role of "patron" or even "philanthropist", the musicales would be it.

The Fishers have lived in their present apartment for 23 years, and it's only three blocks from where he was born, on March 4, 1906. But however modest he may think his current lifestyle, it is in fact far removed from the circumstances of his birth.

"My father, Charles Fisher, was the manager of the equivalent of Brooks Brothers in Kiev," Mr. Fisher says. "He left one step ahead of a pogrom, and arrived here in 1903 with five children and \$200, not speaking the language. If that isn't courage, I don't know what is."

"I was born at 146 East 98th Street, between Lexington and Third. It wasn't the building this one is, but it was a nice lower-middle class neighborhood. My family never starved. Dad was a good bread-winner and totally devoted to his family. Every one of the kids got a college education and every one was given the opportunity to learn a musical instrument."

At New York University, Mr. Fisher was the editor of the yearbook, and his experience with graphics led him to his first job as a designer. He finally settled with Dodd, Mead and Company in the fall of 1933. He stayed with Dodd Mead for ten years, although the last six of those saw the gradual expansion of Philharmonic Radio, which he started in 1937, to the point where he could support himself with it alone.

Given his lifelong fascination with music and sound reproduction, it's a surprise to hear Mr. Fisher call book design "my first love." Even when he hastens to explain that "a



EVERY FISHER (cont'd):

beautifully designed page is music." Mr. Fisher's design work has included musical subjects - the early editions of Thompson's International Cyclopedia of Music and Musicians among others - and has won him several awards. He has kept up the trade as a hobby, always for Dodd, Mead, but nowadays he donates his income from book design to the United Jewish Appeal.

Aside from book-designing, Mr. Fisher has a few hobbies. He used to travel a good deal when he was in the high-fidelity business, but he doesn't much any more. "If you want your physical comfort, you stay at home," he says. "The things that make me happy are right here in this room."

Well, not quite all. Mr. Fisher still maintains a lively interest in maintaining and driving old automobiles. "I'm an old-time sports car buff," he says. "I began in 1952 with the purchase of an Aston-Martin, and since that time I've owned nothing but foreign cars. I still drive a 10-year-old Rover 3-litre Mark III. If I ever had a love affair with a car, that was the one. I've arranged my will so that when I die I'll be seated at the wheel of the Rover, and the whole thing will be lowered into the ground. Of course, all gassed up, in case I want to go somewhere."

SOME COMMENTS FROM A LAND ROVER OWNER: Recently member Thomas Gallucci of Naugatuck, Connecticut wrote us the following letter:

I have a few items I'd like to contribute to the Newsletter. It would surely be a sad day should it cease to exist since it's a valuable medium. British-Leyland has forgotten us and the dealers usually weren't much help. Since many dealers here are discontinuing their British-Leyland ties this points to the fact that we must rely on each other all the more.

Of interest to the membership is a hard cover book I purchased from David & Charles Inc called LANDROVER: WORKHORSE OF THE WORLD. Cost is \$12.95 plus \$.50 postage. (Ed. note: this book is available to the membership from the Association for \$10.50 including postage) It contains an interesting bibliography of the Land-Rover from 1948 to the present. There are several tables showing the top 20 importing countries for a ten year period as well as the total number purchased, production totals from 1948 to present and performance data for the Series I 80, 86, and 107, Series II and IIa 88 and 109 and the Series III diesel and petrol. There are plates showing the Land-Rover at various stages of development, testing, and in sundry applications. The book is quite enjoyable and I highly recommend it to any Land-Rover devotee.

I bought a hand-held spotlight, cut the cigarette lighter plug off, and fitted a Lucas plug for the dashboard sockets. The plug is available from Atlantic-British for \$2.95. This set-up supplies 35,000 candle power and throws a beam  $\frac{1}{4}$  mile. I find it superior to flashlights or battery-operated lanterns because they were invariably dead when I needed them most. I added 30 feet of wire before wiring the plug in, so I can set-up camp or walk around the Land-Rover and have dependable light.

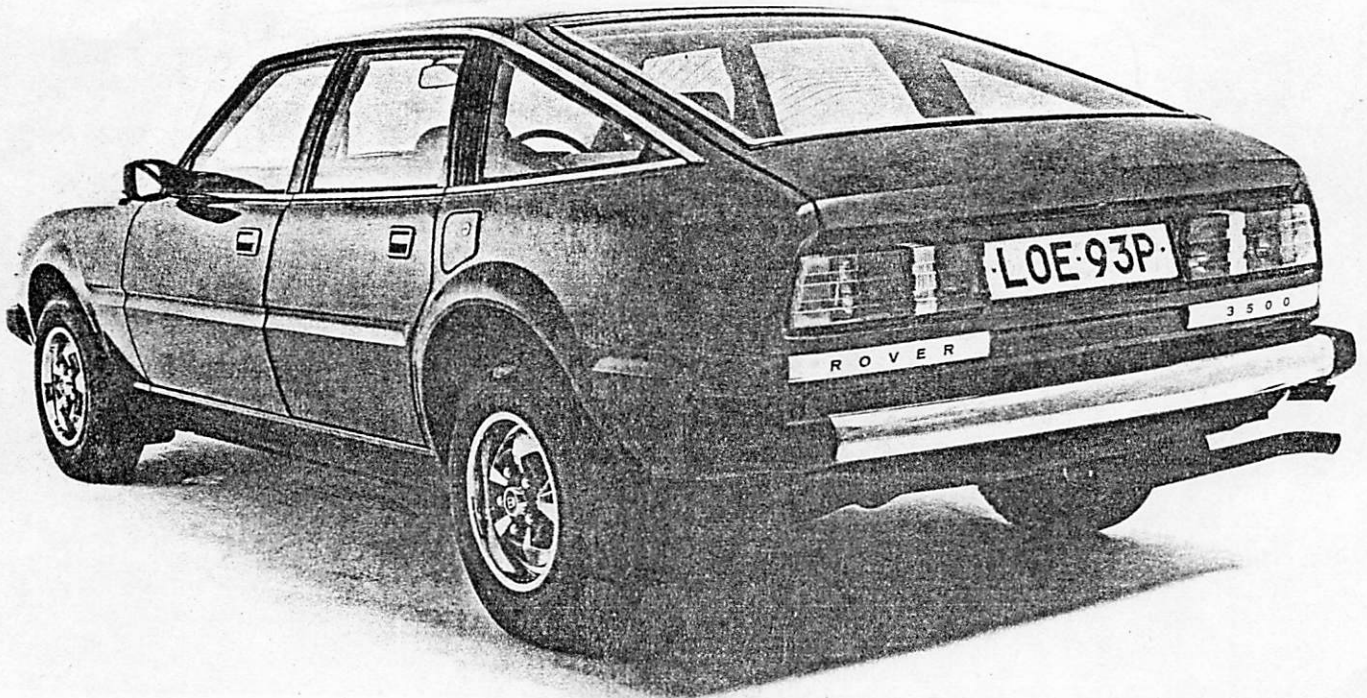
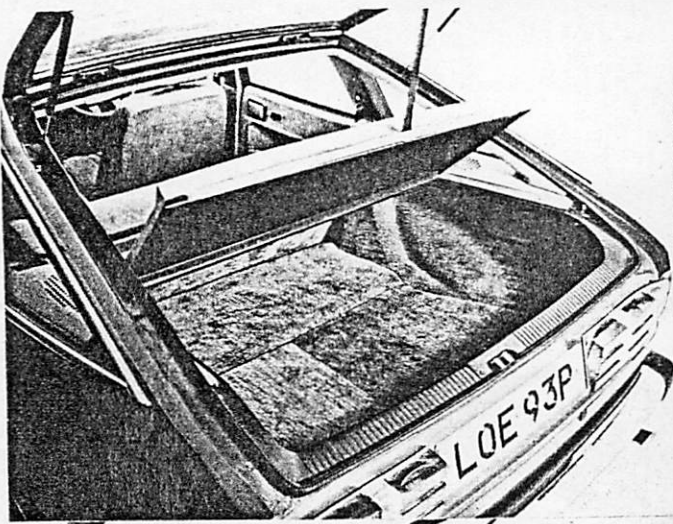
Last week I was stuck and had to be pulled out of my predicament. The jerk towing me with a 4WD truck pulled me into a large oak tree! Luckily, the rear left corner was the part coming into contact and the strength of the body and top is tremendous. He was pulling me about 4 to 5 mph in low range and I was sure that there was significant damage. To my surprise, the only damage was my turn signal and tail-light lenses. From top to bottom the left side was against the tree and there isn't a mark to show it.

The ball joints and steering linkages have no grease fittings. For around \$2 one can buy a greas injector. This allows one to inject grease into the boot by means of a needle that attaches to your grease gun. I'm sure some lubrication will result, and at least dirt and water won't be able to get to the bearing, which will eventually wear out.

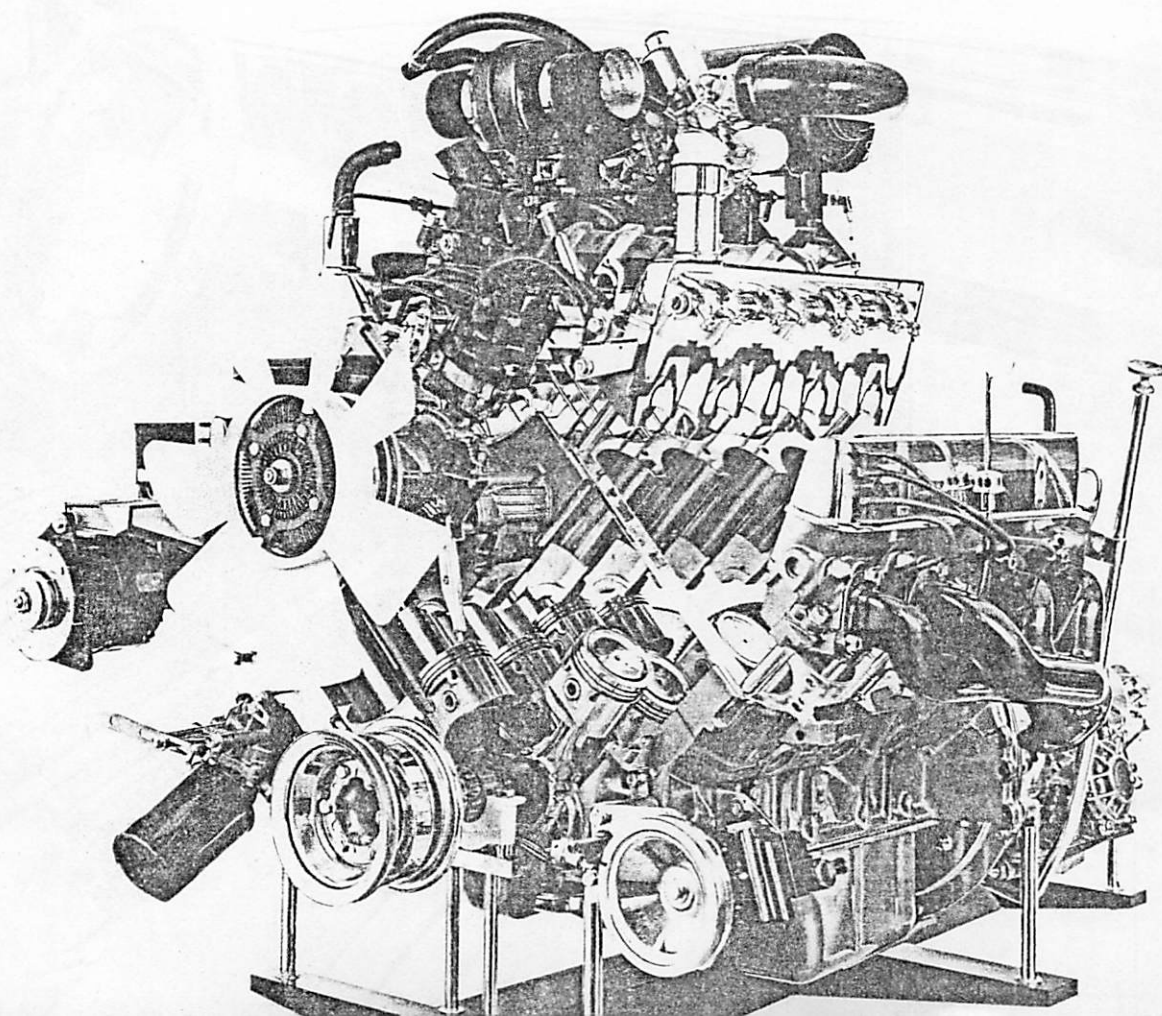




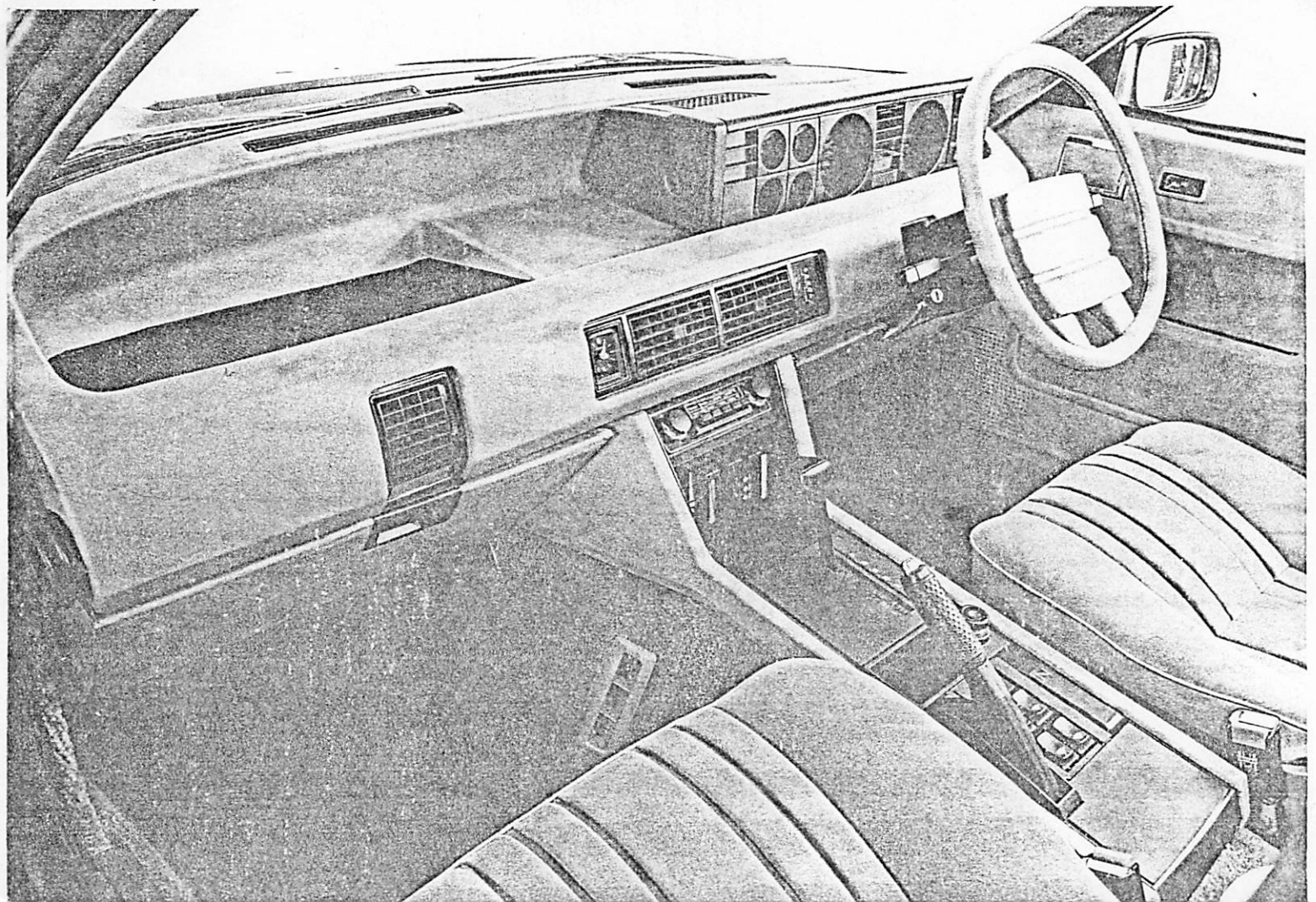
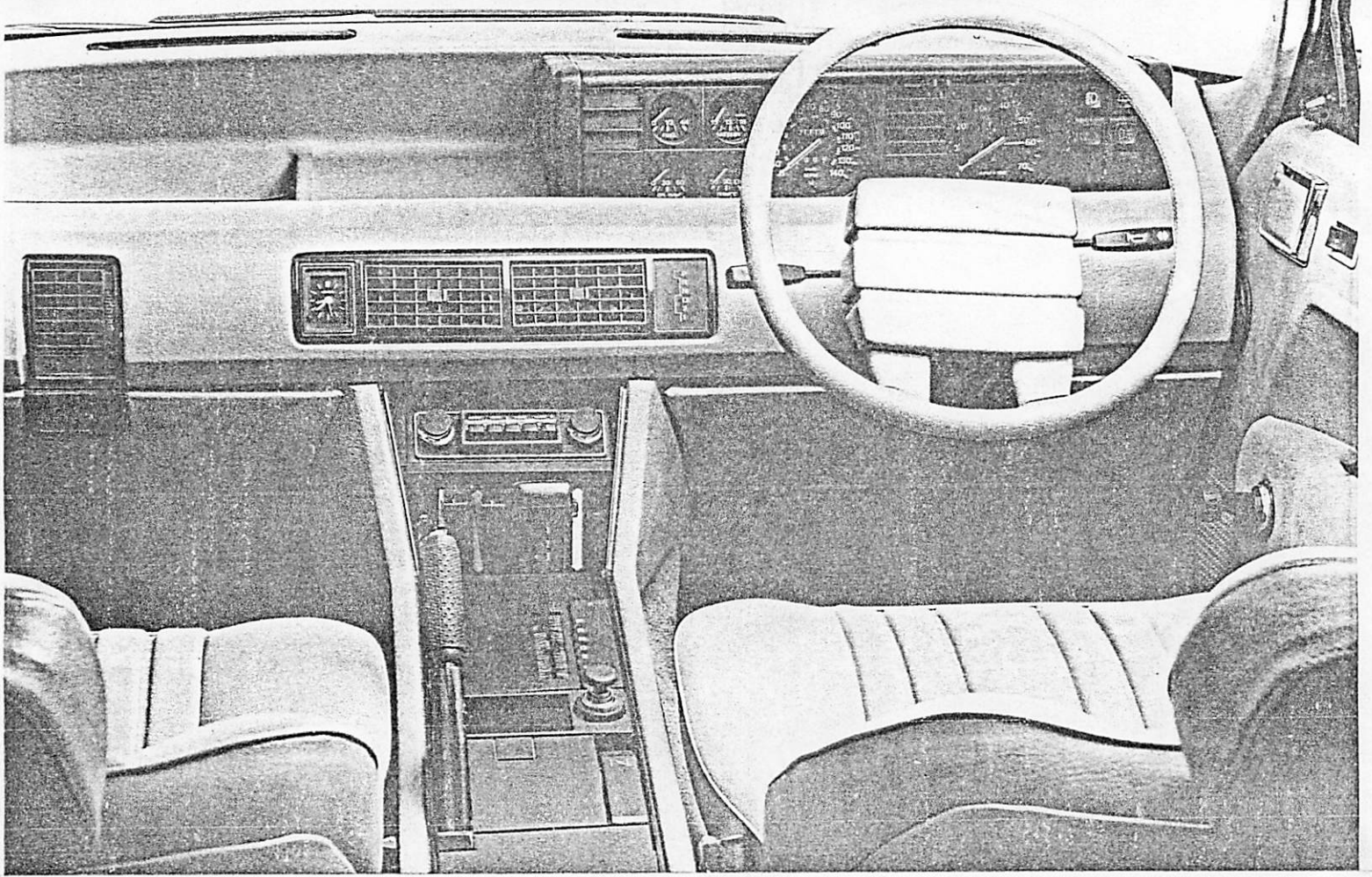














BRITISH-LEYLAND PRODUCES ITS MILLIONTH LAND-ROVER:

British-Leyland has produced its millionth Land-Rover just 28 years after the first was built. The millionth version of one of the world's most versatile vehicles, an 88 inch wheelbase station wagon painted in a special metallic green finish, was driven off the Solihull assembly line on June 17, 1976. British-Leyland plans to retain the vehicle for its historic collection at Dongington Park, although both the first and millionth Land-Rovers will be regularly employed on demonstration and other publicity purposes.

The Land-Rover story began early in 1947 when the British Government impressed on the motor industry a steel quota in relation to each company's exports. Rover luxury cars of the time were not particularly suited to overseas markets and the late Mr. S.B. Wilks, then managing director of the Rover Company, began development of the Land-Rover as a "stop gap" model.

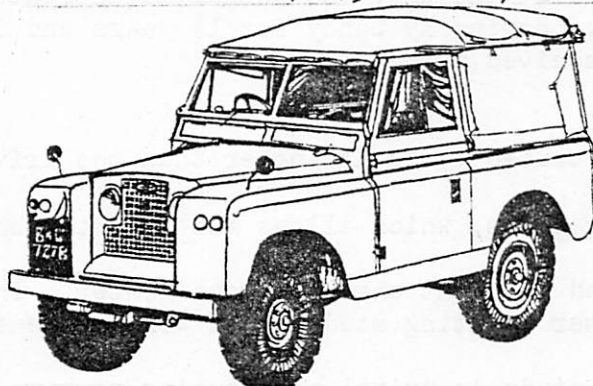
A little more than a year later the first Land-Rover went on display at the Amsterdam Show in the spring of 1948. Since then Land-Rovers have been exported to almost every country in the world. The only exception, according to British-Leyland, is North Vietnam.

Three-quarters of all Land-Rovers produced have been exported and the export percentage in England is rising so that now four of every five produced are for the international market.

The strength of the Land-Rover is such, Leyland proudly recalls, that one was once kept at the Motor Industry Research Association centre where it was used for many years to crash into other manufacturer's new models during destruction tests.

In outward appearance, the millionth Land-Rover is remarkably similar to those built in 1948, but in fact throughout its life nearly every part, down to the smallest nut and bolt, has been changed or modified in some way.

It took 16 years to produce the half-million vehicles, but only 11 more to double this figure. Of the exports, over 40 per cent are assembled overseas. Australia is the second most important export market after Iran. Leyland Australia produces, at Enfield near Sydney, 70 models a week and currently holds a contract to supply the Australian Army with 2100 of the vehicles worth \$14.3 million, as well as meeting commercial orders.



NEW LEASE OF LIFE: A Victorian Four-Wheel-Drive parts specialist has developed a modification for Land-Rover differentials which is claimed to double the strength of existing types. Four Wheel Drives of Blackburn South, Victoria, Australia, designed the differential centre to prolong the life of Land-Rover differentials, other than the Salisbury types. According to the maker, the normal Land-Rover differentials have only two pinion gears, whereas the Gischus has four, spreading the load and doubling the strength of the differential. The center can be purchased by itself with two gears so that owners can use existing differential components, or as a complete carrier section ready to fit to the crown wheel. Four pinions in a differential is not new, but it is an innovation for Land-Rovers.



FRONT OIL SEAL REPLACEMENT: Recently member Mark V. Hillman of Seattle, Washington advised us of the following:

ROANA member Gordon Kirkpatrick told me that the front oil seal of the Landy can be replaced without removing the radiator, water pump, timing gear cover case, etc. I tried it and he was right. Just remove the cranking dog bolt. I used a 24" crescent wrench. Remove the pulley with a puller, remove the dirt shield, and carefully pry the seal out. I used a pin punch. Replacement is the opposite of removal. Harry Lineback's comments on the dirt shield were excellent. Time required: 1 hour, including cleaning and even painting the dog and pulley.

LAND-ROVER ADVICE: Member Brian Mackid of Weston, Ontario, Canada recently wrote the following letter to us.

As I motored along on my vacation up towards Wawa, Ontario, I found it was getting more difficult for my Landy to stay in second gear. If you can imagine what I was thinking! First, I thought that my transmission was going - visions of bills flying away for repairs. Second, I thought of a possible tow back 600 miles to Toronto. What could this evil be? Thinking back on the problem it occurred to me that it would pop out of second and then later it wouldn't go into second, so I reasoned that it could possibly be some type of adjustment.

So my better half and myself started the search. In one of our good provincial parks we began knocking this and twisting that. Nothing! The only place left was on top of the transmission, so out with the floorboards. I wiggled the shaft, watched the selector ends and found the travel wasn't as far on the first-second rod as it was on the third-fourth rod. I opened the inspection box on the top of the transmission which is right under the forward seat support. Looking in, there was an adjustment bolt - could this be it? I reached in with my little finger and found it to be loose. With a few nimble moves of my wrench on the bolt and a few turns on the lock nut the Landy locked into second properly. Fixed!

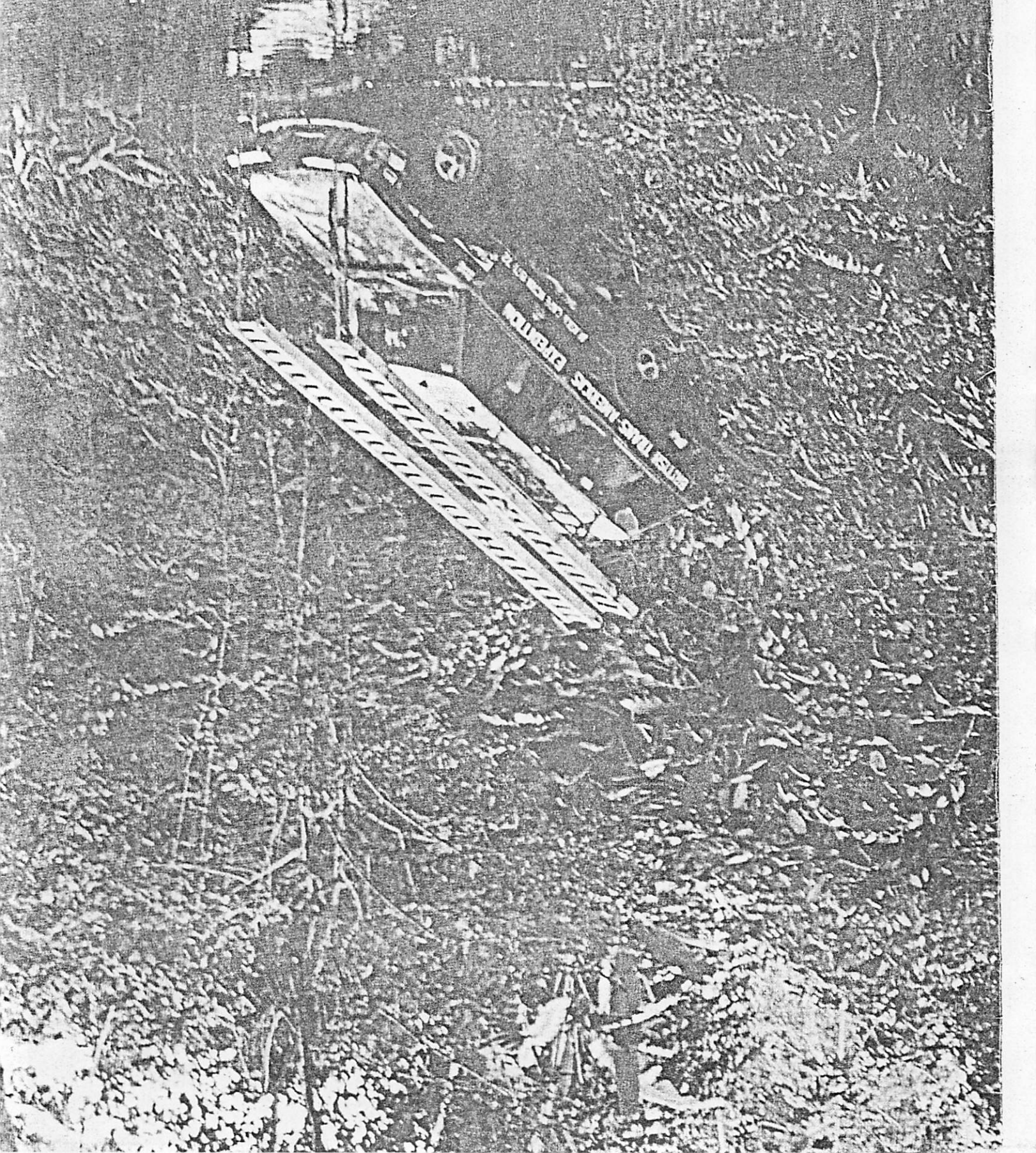
The morals of this little story are two-fold: First, keep an eye on your journal stop - a look now and then can save wear and tear and embarrassment later. Second, if you have manuals carry them at all times and they will save you a lot of guessing. This time, without my manuals, I was lucky. By the way, the actual adjustment was .002 play between the stop-bolt and shaft. Having my Landy for 1½ years and 22,000 miles this was the only surprise that we ever received from her.

Wandering steering is sometimes caused by faults other than the driver, the most common being:

- Loose steering box locating bolts, which allows the steering box to move about on the support brackets.
- Loose steering relay located in front chassis cross member. This has two upper locating bolts and four lower locating studs which work loose and allow the relay to move in the chassis.
- Lower control arm locating studs in swivel pin housing working loose (this does not apply to earlier vehicles with control arms on top of housing).
- Steering box drop arm locating nut.
- Worn or maladjusted steering box.
- Worn swivel pins.
- Worn tie rod and drag link.
- Worn or loose wheel bearings.
- Steering relay upper arm and lower arm bolts.



# The Darien Breakthrough









# The Darien Breakthrough

The story of the British Trans-Americas Expedition  
by  
Major J. N. Blashford-Snell, M.B.E, F.R.G.S, R.E.

Complete success for the British Trans-Americas Expedition came on 9th June 1972 when Captain Jeremy Groves of 17/21st Lancers sent the signal 'Mission Accomplished' from the Cape Horn area.

The Range Rovers had driven through every type of terrain. The frozen wastes of Alaska had almost stopped the undertaking when one car slid 200 yards on the ice-bound Alcan highway to smash into a huge lorry blocking the way. The Rocky Mountains had presented some challenging drives on roads from which vertical drops of thousands of feet descended into rushing, boulder-strewn rivers.

In Mexico they met desert conditions and in Guatemala the Pan Americas highway became a rutted track. They beat the jungles and swamps of Darien and climbed up into the high Andes.

In May 1972 they sped on through South America, crossing more mountains and once again meeting desert in Chile. Here they covered 2,375 miles in four days, and one day made 800 miles cruising at 90 mph on a straight desert road. In the Darien Gap they only averaged 3 miles in a day!

As they neared their goal they hit snow and ice once more. Many mountain passes were blocked and it took five long days to break through this last obstacle belt. On one occasion they had to cross a lake on a very Heath Robinson local raft to avoid the blocked passes. One can imagine the feeling of achievement as the drivers gazed at Cape Horn and switched off their engines after seven months and 18,000 miles.





36 The Expedition's aim was to focus attention on the need to complete the 18,000 mile Pan American Highway, connecting North and South America, by taking motor vehicles from Alaska to Tierra del Fuego. At present it is blocked by this notorious 'Tapon del Darien'.

To my horror I saw the rubber raft rear up like a stricken beast. I tried to shout a warning to the crew, but words failed me and by the time something suitable to say came to mind I heard one of the helmsmen yelling 'She's going lads, get away, get away, we're going over'. The tow rope from my piragua slackened as the raft and its swaying Range Rover car spun out of control in the foaming water, engines racing and men plummeting over the side. Water was pouring in through a two-foot gash in the hull of one pontoon.

Like a whaler's longboat the piragua, or Indian canoe, with which we had been towing the raft across a fast flowing river, was now dragged backwards by the stricken grey 'whale'. One man was still aboard, the raft commander, Sgt. Major David Wright of the Royal Engineers, boat expert and formerly a helmsman on the Blue Nile. Already my Panamanian boatman, Canito, instantly realising what must be done, had sliced through the tow rope with his sharp machete. Somehow the raft was still upright. Men were struggling in the water, clearly visible by their bright red life jackets. Down-stream the great raft spun, but by a miracle it seemed the serious-faced raft commander was winning control and as we watched he rammed the wreck into a shingle bank. Most survivors had reached the river's edge and were clinging on to the trees, few had the strength to climb out: they had been working for hours in the blistering heat and for some every step, with their feet raw from 'jungle foot', was agony. With his usual skill Canito swung the 30ft long boat around and we picked them up. Some laughed nervously, some grinned, others looked very shaken and in spite of a shade temperature of over 80°F, they shivered. Thank God everyone was safe, even the vehicle had been saved; but the raft ripped open by a rock was crippled and would need much work before it could continue.

At the end of the expedition, after over three months gruelling battle against one of the worst obstacles in the world this incident seemed to have happened years ago and indeed was only one of the near escapes we had suffered during the 99 days the British Trans-Americas Expedition had been striving to get motor vehicles and a team of scientists through the infamous Darien Gap that stretches from Canitas in Panama to Baranquillito in Colombia. The Expedition's aim was to focus attention on the need to complete the 18,000 mile Pan American Highway, connecting North and South America, by taking motor vehicles from Alaska to Tierra del Fuego. At present, it is blocked by this notorious 'Tapon del Darien', which previously had defeated all attempts to take vehicles through the Gap and over the great Atrato swamp. The Expedition also carried out a large scale scientific programme involving British, American and Panamanian scientists, who studied the botany, biology, geology, geography, entomology and zoology of the region. Medical and veterinary subjects as well as the Indians were also studied.

Originally the idea for the venture came from the Darien Action Committees in the Americas, and a British Trans-Americas Expedition Committee under the energetic Chairmanship of Lt. Col. Julian du Parc Braham was formed in 1970. Experienced explorers and travellers in this wild land were asked to consider whether such a project was feasible. Most people considered it was sheer folly, especially as several other well-prepared expeditions had failed.

In 1970 the Committee asked my advice on the idea. Looking back I remember that I too, considered that it was madness, but after reconnaissance carried out by a young explorer, Brendan O'Brien, I believed that it could be done, but it would need to be a massive undertaking, fought like a long-drawn-out battle,

with a good chance of high casualties and a certainty of great discomfort. Nevertheless, the project got under way and soon the supporters included the British Army and the Governments of Panama and Colombia, the British Museum (Natural History), the Scientific Exploration Society and numerous companies and individuals in Britain and the Americas. With the backing of the Army, the Expedition assumed the proportions of a war-time task force: 59 men and 5 women, from Britain and America joined some 40 Panamanian soldiers and 30 Colombian servicemen in central America in early January 1972. Operation Darien, as it was known, had begun. Air support consisted of a British Army Beaver aircraft, plus helicopters from the United States Air Force and the Air Forces of Panama and Colombia. Medium range transport aircraft and light reconnaissance planes also helped us.

The vehicles chosen for this great drive were two Range Rovers kindly provided by British Leyland and they were to be joined later by a Land Rover pathfinder, which we purchased in Panama. The Range Rovers with six men as their crew went on to complete the drive from Alaska, which they left in early December 1971, to Tierra del Fuego, which they reached in June 1972. The Land-Rover, having completed its task as a pathfinder, has now been flown back to Panama and given to the Guardia Nacional.

To carry stores as far as the Colombian border, Army Veterinary Officer, Major Keith Morgan-Jones (whose ancestor, Sir Henry Morgan, was also well known in the area) brought 28 pack ponies. To comply with foot and mouth regulations they were to be replaced by local mules at the Border. Although only five ponies reached there it is a great credit to our vet and his two lady assistants, Miss Carolyn Oxtan and Miss Rosemary Allheusen, that even these got so far. Frequently they became stuck in the deep mud, some died of disease, others were driven almost mad by the bites of vampire bats and blood suckers, but the strong kept going and enabled the Expedition to advance.

The Sappers, whose equipment was largely carried on the horses, developed a strong affection for them. On one occasion a section of Engineers struggled for some 19 hours to save a pony from a deep morass.

Our horses were a vital part of the team. One Royal Engineer, Lance Corporal Lee Yeun, took particular care of his section's pack horses. A splendid bay called Cromwell was suffering from the bites of vampires and huge blood sucking flies. To prevent Cromwell from scratching the ointment-covered wounds the Lance Corporal cut up a pink parachute and made a protective bonnet and enveloping nightdress. Alas, Cromwell, attired in this garb, broke loose one night and disappeared into the jungle. Later, he was found by Indians who had been indulging in an all-night drinking party. On sighting this terrible pink apparition they took to their heels and fled, believing it to be an ancestor come to reprimand them for their drinking. However, the expedition went to the rescue. Cromwell was disrobed and the Indians were allowed to keep him in the interests of good relationships.

The rains in Panama usually end in mid-December. One then has approximately three months of relatively dry season to cross the Gap but in 1972 we were out of luck. The rains did not end until mid-January and as a result the ground on the first part of our route was a sea of mud. My first task was to carry out air reconnaissance. The Beaver flew in on a cool summery morning to the little airstrip at the Military Instruction Centre on the edge of the Gap. Soon we were racing through the cold morning air, the roar of that powerful engine taking us up and above our base camp. Now for the first time I was seeing the Darien Gap, one of the most difficult and dangerous places in the world. We turned above the airstrip and headed east-south-east. Beneath us was a gentle country, rolling green Savannah, dotted park-like with trees and herds of white cattle. The town of Chepo, with its galvanised iron water tower, slid by under the port wing. Beyond, the sun glinted on the thick brown coil of the Bayano river, glistening like a giant snake. A scatter of white boxes in a square of turned red earth was Canitas. We tilted down as our pilot, Captain David Reid of the Army Air Corps, turned the Beaver once again. Now the grassland was patchier; the green darkened and thrust up towards us. A mist that had lain in 'sausage' shaped clouds at tree top level began to clear.



The true shape of our enemy now showed, but from 500 ft. it still looked oddly innocuous, the ridges that rose steeply beside us were forested, but on the plateau between, the trees that stood out most were widely scattered. All rose straight-trunked, some carrying umbrellas of foliage at their tops, others white and dead looking. Their branches were like spread fingers reaching up to us. We dropped to have a closer look. I glanced at the altimeter. It still read 400 ft., yet we seemed almost to be brushing the tallest trees. I looked again at the green carpet around their base and realised the truth. What we had been looking at was merely the primary jungle; the real problem lay below it. The most prominent trees must have been up to 150 ft. high. They rose out of undergrowth so thick that even from a modest height it looked solid. This secondary jungle flourished where the tallest trees were sparse and let the sun in. Although it seemed like shrubbery, what we could see were the tops of the lesser trees.

The Bayano river alone broke up the mass. David throttled back and put the Beaver's nose down. We skimmed between the trees a hundred feet or so above the water over one of the long, narrow outboard-powered canoes that serve as river transport in Darien. Faces turned up and arms waved. The Beaver's nose lifted and with a shattering roar from the engine we were carried over a loop in the river. The neat rectangular palm leaf roofs of an Indian village clustered on the bank. Strangely, not a soul was in sight. We climbed to 1500 ft. and headed for the northernmost of the two mountain ranges that flank the Darien Gap. They and the valley between were laid out tidily and precisely as on the map; a relationship which is strangely surprising the first time one sees it. The Beaver found a winding valley which we followed at tree top height, weaving in and out between the timber-clad slopes, switching back over the ridges that blocked our path. We made a tight turn to make a photographic run, I found myself clutching a Polaroid camera tightly to avoid it being sucked on the open window. In the back



(Above) Spick-and-Span before leaving Rover Solihull, the Range Rovers and their crews soon found the going tough. The other photographs on these pages show scenes typical of the terrain encountered in the Darien Gap. The dangers and the hardships are described in the story.



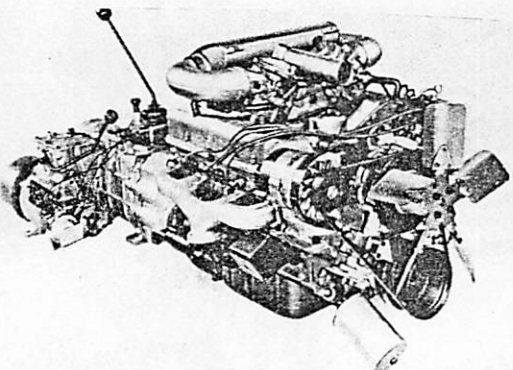


of the aircraft, Peter Marett, my information officer, quickly processed the film as I handed the camera back to him after each shot, at the same time he was making copious notes, using a special Tandberg tape recorder and watching the countryside fly past. Our eyes searched the ground for any sign of a track. There was none. The hills did not appear from the air to be too steep, but once you got low you could realise that they were not going to be an easy task.

The problem was to recognise the smaller features, such as rivers, which twisted and turned under the green canopy. There were very few villages shown on the map although we saw the occasional houses dotted along the river banks. One of my main tasks in the reconnaissance was to discover the best place to cross the Bayano river. We flew up and down the river line until our fuel was almost exhausted. Several points looked possible but all would require rafting and the current was by no means slack. Once we saw a track deep in sticky black mud leading to the river. So this was to be it. We turned for home and landed, deep in thought.

I could not imagine how Balboa in his suit of armour had staggered across this green hell to stand on a peak and discover the Pacific. However, I could easily understand how Sir Francis Drake and his lightly clad raiders had used the jungle to approach the Spanish treasure trail and enrich the coffers of Queen Elizabeth I.

On 17 January, David Bromhead and his reconnaissance team moved in to the Gap. We had hoped to find the crossing point quickly but soon we were lost in a range of low hills that run parallel to the great waterway. Using the Beaver aircraft we directed the recce team on to the right track. At the end of this track they discovered the river. Meanwhile, the main body was assembling its horses, vehicles, and stores in Canitos. It was still raining as, drenched to the skin, we loaded the horses on 19 January. The recce party had warned us by radio that the track ahead was thick with mud and bisected by steep-sided ravines, but we could wait no longer for three months was





66 Our sweat-soaked clothes rotted on us. Leather equipment grew mould, even the best jungle boots available began to fall apart. The mosquitoes, gnats and flies became a constant plague . . . )

really very little time to reach the far end of the Gap anyway. So, for the first three days we marched in terrible conditions through the heat and mud of the open pastureland. At night we camped with our hammocks slung between the trees, cooking on damp wood fires. As yet the mosquitoes were not a plague but, nevertheless, we always hung nets above our beds.

The Bayano river was no mean obstacle, a 150-yard-wide brown stream flowing at over 4 knots between jungle-covered banks. However, the Sappers were confident and skilled, and in three hours they had got men, horses, vehicles and equipment all safely to the other side. The Avon M650 inflatable raft had already proved its worth. Now we stood on the far bank, having crossed the first obstacle. We looked ahead into the darkening jungle of the Bayano valley, the track still fairly clear but still covered in sticky black mud.

Each day we marched on a little bit further into the forest. Meanwhile outside the Gap the scientific team were working in their own areas, some of them coming in from day to day to visit us.

Through the jungle we moved in a long straggling column. Our prison, for that is what it was, was illuminated by a dull green light, which at times gave an almost translucent appearance to this eerie world. Great trees rose up like pillars reaching for the sun, which beat down on the canopy some 150ft above. Lianas and vines hung down in a tangled mass to catch projecting horse loads and to trip the unwary. The ground was a mat of leaves constantly being re-supplied from above. Underneath we found a layer of humus, from which grew thick undergrowth. Visibility was rarely more than 30 metres and all the time, day and night, the jungle resounded to the drip, drip, drip of the condensed humidity and the occasional crash of some giant tree falling at the end of its life. When the rain came it usually fell in torrents, turning the track into an instant quagmire. The thick black mud, ravines, gullies and dense jungle were augmented by the fast flowing rivers, patches of poisonous palms and stinging plants. All these problems combined against us. It was easy to see how the ill-fated Scots colony that was established on the coast of Darien in 1699 had perished from disease and hunger.

Our sweat-soaked clothes rotted on us. Leather equipment grew mould, even the best jungle boots available began to fall apart. The mosquitoes, gnats and flies became a constant plague; there were inch-long black ants whose bite hurt like hell for hours, there were also stinging caterpillars and, in the rivers, electric eels. The heat and humidity were oppressive and even the nights brought little relief. Clusters of aggressive and vindictive hornets nested in hollow trees and swarmed out to meet anyone who disturbed them. I have never seen insects so vicious. Within seconds a well-ordered column could turn into chaos under attack from hornets. One of the girls became seriously ill when she developed an allergic reaction to one such assault. Inch-wide centipedes and black scorpions also took their toll, whilst spiders as large as dinner plates were fearsome to behold.

When brushing against the foliage we constantly picked up ticks that, almost unnoticed, buried their teeth into one's flesh with such tenacity that they often had to be removed by the medical officer. If the head remained in the skin it became a constant source of irritation. On the other hand, snakes, although numerous, were usually shy and it was not until later in the expedition that we came across more aggressive varieties. The larger animals were rarely dangerous and on one occasion a recce party came face to face with a beautiful black panther on the jungle track. There were other cats such as ocelot and margay and, surprisingly, large deer.

The white-lipped peccary, a small wild pig, was a different matter altogether. Unlike his timid cousin, the white-collared peccary, this beast was much feared and avoided whenever possible. They moved in the twilight areas of the darkened forest in sounders of up to 300. At nights in the impenetrable

darkness only the noise of their snorting and rooting gave us warning of their approach. A machine gun would have had little effect on the concentrated rush of these ugly-tempered creatures and on one occasion they completely wrecked a camp, scattering the terrified horses into the jungle.

Not surprisingly our Sunday services were well attended and with Keith Morgan-Jones as choirmaster, the Sappers, who loved to sing, would give throaty renderings of 'Guide me, O Thou great Redeemer' and other appropriate hymns.

The 25 Royal Engineers of our team were commanded by a veteran explorer, Captain Jim Masters. He had been one of the most important men in the conquest of the Blue Nile in 1968 and had also played a leading part in the Dahlak Quest expedition two years later. Army mountaineer, Captain Richard Summerton, who in 1970 climbed Annapurna, was one of the reconnaissance and re-supply officers.

The Royal Engineers had been especially selected for their experience and stamina, many were old hands at jungle bashing but also there were two 17 year olds from the Junior Leaders Regiment RE, at Dover. Neither had been outside England before, but like other youngsters on the trip, put up a fine show. Also working as an Engineer was an 18-year-old civilian, Simon Wilson, who had just left school and was sponsored by the Project Trust. He obviously enjoyed working with the soldiers because on return to England he joined the Army!

Other members included experienced Himalayan explorer, Major Kelvin Kent, Royal Signals, a former member of the Annapurna South Face Expedition; Mrs Kay Thompson, a well-travelled lady explorer, who had been on five major expeditions previously; Mr Robin Hanbury Tenison, an expert on the South American Indian and Chairman of Survival International; one jungle expert was Sgt Partapsing Limbu, of the 7th Gurkha Rifles. The Hon Charles Keyes, grandson of the famous Admiral, was an interpreter and navigator. There were also soldiers from the 17th/21st Lancers, Royal Artillery, Royal Signals, Infantry, Army Air Corps and REME.

In the beginning we had moved in a complete body with the leading recce team working some five to ten miles ahead. Another reconnaissance team worked about two miles ahead, marking the trail. Behind this came the first Engineer section to cut a track some 10ft wide, using machetes, power saws and dynamite. They must have felled thousands of trees and when they reached a ravine they bridged it with special aluminium ladders, two of which were carried on each car. These ladders could be linked together and were used for a variety of purposes from bridging to rafting. I calculated that we had used them four hundred times throughout the expedition. The second Engineer section used Tirfor jacks, blocks, tackles and the capstans on the cars to their absolute limit to drag the Range Rovers up the steep and slippery slopes.

Finally the animal transport and Expedition HQ brought up the rear of the column. Rations, petrol, radio sets and medical supplies made up the bulk of the pack horse loads. Meanwhile the scientists moved in independent groups about the Expedition area. From time to time they came in to join the column before once again disappearing into the jungle in their quest for knowledge.

But time was against us and every day counted if we were not to be defeated by the onset of the rains in mid-April. We purchased a second-hand Land-Rover in Panama for use as a pathfinder vehicle and it was flown out in the belly of a giant United States Air Force helicopter. Its purpose was to support the leading Engineer section, which, under the command of veteran obstacle breaker Captain Ernie Durey, RE, was pressing ahead with all speed.

The climate and pace were beginning to tell. In fact, throughout the whole expedition more than 30 members had to be evacuated by helicopter, light aircraft or boat, because of illness. Our doctor and his energetic SRN wife Suzie fought a constant battle to keep us fit. To maintain the momentum we employed large numbers of local people and Indians; which added considerably to our costs. With their long machetes these hard-working men continued to hack through the jungle. Navigation was always difficult and from time to time we became lost in spite of our Indian guides.

To keep us alive, supplies were brought in by boat, helicopter, parachute, pack ponies and porters. In all, over 10 tons



of rations, 15,000 gallons of petrol, 2,400 cans of beer, and 80,000 cigarettes, plus sacks of horse fodder, boxes of dynamite and mail were delivered by these means. These vital items mostly came from our support base in the Pacific coastal town of La Palma. It was not always easy to find the customers so to help our Army Air Corps team, gas-filled balloons were launched on the end of a string to come bobbing up above the tree canopy. These balloons, coloured fluorescent orange, were accompanied by a firework display of rockets and mini-stars. Even so, searching for a small party deep in the jungle took all the skill the army pilots had.

Members of the Expedition had been picked for their compatibility, physical fitness and expertise. I planned to form a team rather than a group of prima donnas. However, as our problems increased and the going became more difficult the inevitable minor squabbles and signs of nervous exhaustion more common in mountaineering, became apparent.

The girls rose high in our estimation, for in spite of living under the same trying conditions as the men and being expected to work the same hours, do guard at night, pull the horses through the mud, push boats up rivers and beat off the hordes of insects, they retained their good humour, rarely complained and always looked smart. Indeed, they added tone and often brought commonsense to cool down a heated argument.

There were many narrow escapes. Captain David Bromhead, descendant of Bromhead VC, of Rorkes Drift, was bitten on the boot by a deadly 6ft Bushmaster snake. Feeling the reptile strike him he drew his .45 Smith and Wesson revolver and shot its head off with speed that would have done credit to one of the better gun fighters of the Wild West. On another occasion only the timely arrival of a United States Air Force helicopter, flown all the way from the Canal Zone to an Indian village on the Colombian border, saved one young soldier's life. Junior Sapper Duffy was suffering from acute appendicitis, brought undetected to a climax in this remote region because he had been taking penicillin for an injury and this had masked the real danger within his stomach. Our medical officer stayed with him throughout and returned to Panama to assist the surgeons in unravelling Duffy's twisted intestines. Near the frontier we had another lucky escape from serious snake bite when our Gurkha Sgt. Limbu was struck at by a huge Bushmaster which reared up behind him. It struck twice but each time by good fortune Sgt Limbu was taking a pace forward for his next swing at the vegetation and each time the snake missed him. Behind Limbu there was a Colombian cutter called Ruby who spoke no English and no Gurkhali. Limbu spoke no Spanish and therefore Ruby's timely warning went unheeded. However, he raced up and pinned the reptile down with a large forked branch. Even so he could not manage to hold it. Now Limbu saw the danger and spun around to despatch his attacker.

Although the British Trans-Americas Expedition could not be called the most hazardous of operations, there was always danger around the corner. And on the last day we almost lost the lives of two men who were returning to Turbo with the Colombian gun boat. They were working on the raft which was tied alongside the gun boat, which in turn was moving at approximately five knots. Suddenly something must have hit the front of one of the inflatable boats, for without warning the bow of the raft doubled up and water swept over the whole construction. Both men were hurled into the river and sucked under the ship. They found themselves bumping along the rusty, flat hull and suddenly being spun with enormous force by the propeller. Fortunately the gun boat had lost a propeller the previous week and now only had one, which definitely increased their chances of survival. Nevertheless, they were extremely fortunate to be hurled out into the wake of the gun boat, having lost all their clothes and watches. With only superficial bruises and cuts they were hauled aboard the ship and congratulated on their lucky escape.

The Expedition rations had been designed specially for the project by the Ministry of Defence and were very good. Other food was provided by numerous kind sponsors. In addition, to economise and to vary the diet, we ate local dishes, which included jungle fruit, iguana, fish, monkey, snake and wild turkey. The climate, which was usually between 90 and 100°F with 85 per cent humidity, led one to long for fresh, crisp, salads, but the dehydrated food, especially the sliced apple, was a fine substitute.

“ We were two weeks behind schedule and the promised rains began. It was a desperate race to cross the remaining 60 kilometres that no motor vehicle had crossed before. ”

Although water had caused difficulties for much of the journey, eventually the lack of it became a problem and thus we had to resort to slicing open vines and drinking from them or filtering the water from slimy pools, or having our own delivery by parachute.

Toward the end when the rains finally came we were lashed with the full fury of the elements to an extent which few of us had ever witnessed. When this happened we were still crossing the most difficult area of all. This was the hilly frontier region known as the Devil's Switchback. Here it was that whilst trying to hurry our reconnaissance we suffered a severe setback by leading the column straight up a 'one way street'. This led to an impenetrable hilly barrier and because our Beaver had suffered damage to its tail wheel at this time and was being repaired, we failed to see the danger by air reconnaissance. Thus for 10 days we floundered and struggled to conquer the Pucuru heights. In the end we took a gamble and motored the cars up the bed of the river Tuira. This was possible because of the low level of the water, but occasionally when we reached deep pools a raft was called in and used to ferry the cars to the next shallow water. By this method all three cars were able to find a way around the obstruction and reached the old smuggler's trail on the eastern side of the Tuira valley after climbing some extremely steep hills.

At last we reached the frontier at Palo de la Letras, a broken concrete plinth on a jungle-covered hill top. This was our summit and now we were going downhill.

Half a mile from the plinth, on the Panamanian side, we found a rusting red car, a sad reminder of the ill-fated Chevrolet expedition that had reached the frontier over 10 years ago, and then turned back. Now it lay, a rotting hulk with trees growing up through the engine compartment and an ants nest in the boot. As we poked sticks into the interior a venomous coral snake slithered from beneath the remains of the back seat and a large black spider emerged from the dashboard.

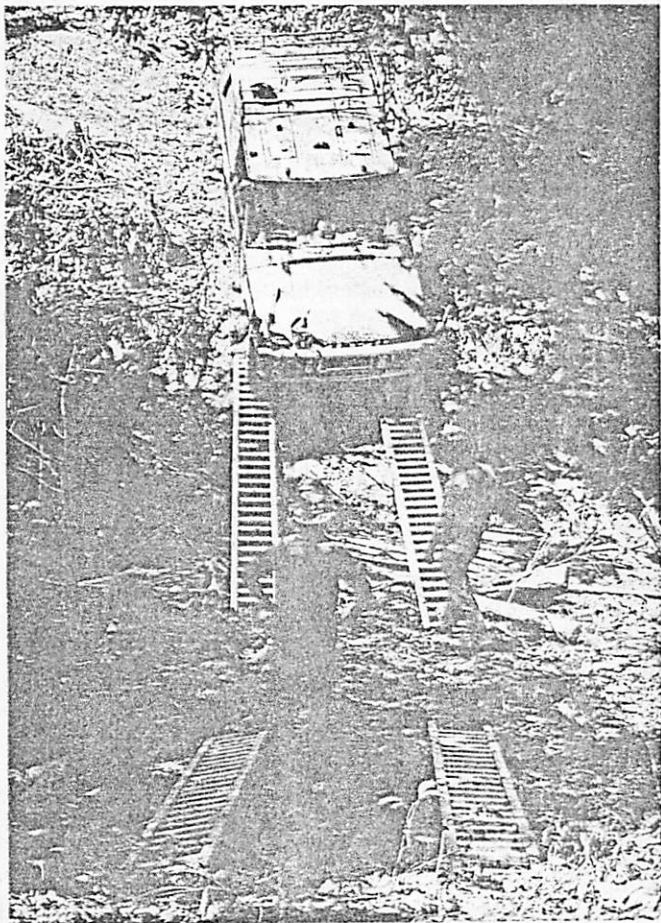
From here on the going got wetter but a new spirit had come into the team and nothing could stop us now, not even the swamp the size of Wales that lay ahead.

In addition to the support from the United States Forces in the Canal Zone, the help of the Colombian Air Force, Army and Navy was superb, and for the crossing of the Atrato swamp the Colombian gun boat became our floating HQ.

It was in Colombia that a great tragedy occurred. Whilst setting out to join the expedition a reconnaissance party of six Colombian servicemen and our Liaison Officer, Captain Groves, were travelling in a small tin boat. After leaving Turbo Harbour the boat capsized in a heavy sea and sank within 15 seconds. The only survivors were a Colombian officer and Jeremy Groves. To our horror we heard that the remaining five Colombians had been drowned or sucked down in the mud of the mangrove swamp that fringed the shore nearby. Nevertheless, our Colombian friends produced another team within a matter of days and continued to support us wholeheartedly until the very end. So on 10 April the Expedition HQ was established for the last time. By coincidence it stood on a 'peak in Darien' looking out, not across the Pacific, but over the steaming green morass of the Atrato swamp. We were two weeks behind schedule and the promised rains began. It was a desperate race to cross the remaining 60 kilometres that no motor vehicle had traversed before.

Working ahead of us for some weeks Captain Richard Summerton RE, had discovered a possible route through. Much of the area was pure liquid with a coating of water weed, and in this weed there lived countless mosquitoes, many snakes and the occasional alligator. To break through we decided to use our raft, which was undoubtedly the most successful single item of engineer equipment we possessed. It was designed to be carried inside one of the vehicles and when inflated could itself carry one car. This was the only raft of its type in the world and had been specially designed and built for us by the Avon Rubber Company and the Royal Engineers. Forcing a way through the matted weed was a very difficult problem, we





Top. Aluminium ladders afforded extra grip for steep descents where the surface was loose or slippery.  
Above. Comparatively easy going for a change.

One of the Expedition Range Rovers fully equipped and fitted with extra large 'swamp' tyres. The pristine condition of the vehicle indicates that the worst was yet to come.



tried cutting with machetes, pulling on it with grapnels, and eventually used necklaces of dynamite. The side benefit of the latter method was some good fish breakfasts. Indeed the swamp was teeming with huge Tarpon and numerous fish of all types. As we forced our way through, the foul stench of rotting organic material rose up. In some places logs had mixed themselves in with the weed to form more obstacles and these were smashed with dynamite or sliced through with the power saws. Gradually the trees began to increase, strange unearthly shapes, growing up from the swamp around us which was only populated by huge birds, lizards and giant otters. It had the appearance of a primeval forest and was totally uninhabited by man. On one occasion my piragua capsized in the swamp. Luckily it did not sink, because apart from a muddy bank nearby there was nowhere to swim for safety. Whilst bailing out the boat we were supported by our life jackets and although we lost some valuable equipment, we managed to reboard the boat and continue our journey, somewhat shaken, very wet and rather smelly.

Eventually the cars were placed on a firmer crust. This slippery surface of matted vegetation and soil would be flooded when the rains came to their height. Now, however, it was about three to four feet thick and would stand the weight of our vehicles fitted with extra wide Firestone tyres. The area, which was forested, had the construction of a giant sponge and you could see numerous holes going down from the surface into the liquid mud, doubtless it was up these shafts the water would rise and flood the area. We were told by engineers and surveyors that they had lowered a drum full of concrete on a wire into the swamp and at 1,000ft they had not yet reached firm bottom. Many parts of this incredible area looked solid, but one day when landing from a float-fitted helicopter I climbed gingerly out onto the surface. Immediately the area within 10 or 15ft of me gave slightly and I had the wobbly feeling which I imagine one would get from standing on a giant blancmange.

On 23 April the sun set with its usual livid orange glow and as it did so a party of ragged, filthy men and women, mules and vehicles, emerged on the far side of the vast bog. Their eyes were hollow and their faces drawn, their bodies were a mass of bites and sores and their feet were in an indescribable condition due to an ailment called immersion foot, but somehow as they staggered up, dragging, heaving and pushing their vehicles on to the northern end of the southern section of the Pan American Highway, they managed to smile.

After 99 days in the jungle and swamps of Darien, we had broken through. It was St George's Day.

We were received with fantastic celebrations in Colombia, made Freeman of the local town of Chigorodo, feted in the provincial capital, Medellin, and finally formed a motorcade through the streets of Bogota. Messages of congratulations poured in and amongst the first was one from Her Majesty the Queen. The Expedition was presented with a gold medal by the Darien Action Committee for their services and endeavours in conquering the Gap and each of us received a gallon of local spirit from the Colombian Army. My Deputy Leader, Major Kelvin Kent, said 'comparing this with the 1970 assault on the south face of Annapurna in the Himalayas, the crossing of Darien by vehicle had been as tough, and in many respects more difficult. When I compare this with the jungles of Borneo and Malaya, I find the Darien jungle to be infinitely worse'.

The project had been the most ambitious expedition ever undertaken by the British Army and many times during the journey we found it hard to believe that we could win, but still we pressed on.

Indeed, it has been an incredible adventure, accomplished by determination, flexibility, excellent equipment and good practical engineering, coupled with the generous help of all the sponsors and governments concerned.

Already our track has become known by the Indians as the 'Carretera Ingles' - The Englishman's road, and they are using sections of it to travel to market and visit distant relatives. Now we learn the Pan-American highway has been given the 150 million dollars it needs and will follow our path. One day I should like to return and motor through the Gap in comfort, but I sincerely hope that the road builders will spare a thought for the animals, the people and the flora of this strange land, whose environment may now be changed for ever.

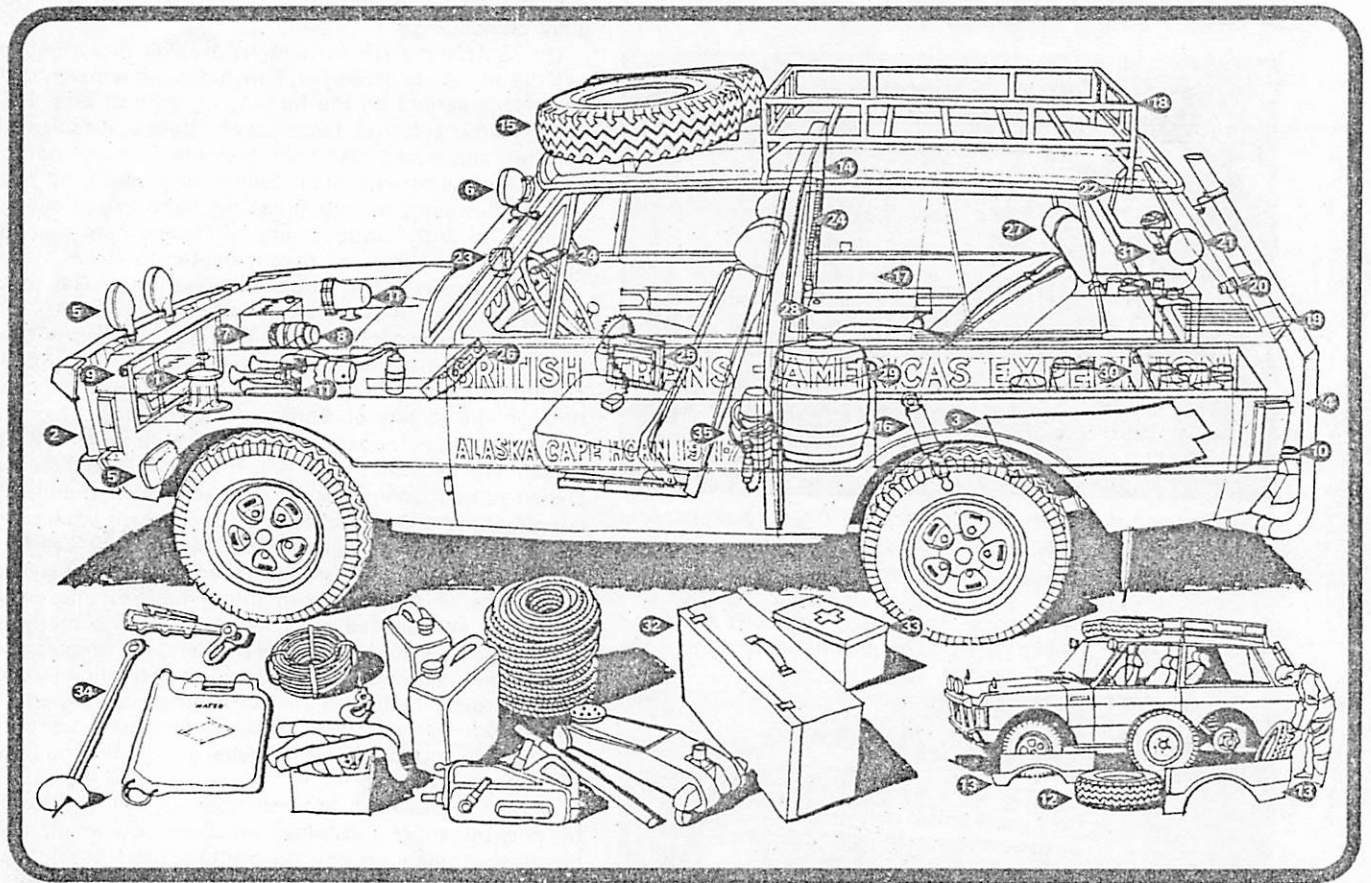




Left. One of the estimated four hundred occasions on which the ladders were used.

Below. An artist's impression of the Range Rovers used in the Trans-Americas Expedition, showing many of the special fittings and equipment.

- |   |   |
|---|---|
| 1 Front mounted capstan winch 3,000 lb capacity   | 22 Wiper/washer equipment for rear screen   |
| 2 Reinforced bumper/cow catcher guard             | 23 Extra instruments – tachometer, oil pressure and temperature gauges, ammeter for split charge system |
| 3 Petrol tank undershield                         | 24 Map reading and interior lights  |
| 4 Raised exhaust extension                        | 25 Two-way vehicle radio  |
| 5 Four Quartz-iodine spot and fog lights          | 26 Stereo-tape player and radio   |
| 6 Two swivel spot lights                          | 27 Reclining seat with full safety harness and headrest   |
| 7 Split charge two battery system                 | 28 Built-in safe  |
| 8 Heavy duty alternator                           | 29 Water keg  |
| 9 Radiator muff                                   | 30 Partitioned stowage lockers  |
| 10 Four extra towing eyes                         | 31 Inspection light, 26ft lead  |
| 11 Sirens and air horns                           | 32 Fully comprehensive tool kit   |
| 12 Swamp tyres                                    | 33 Medical supplies   |
| 13 Removable wing panels                          | 34 Extra equipment, hand winches, ground anchors, cable, tow ropes etc                                  |
| 14 Roll-bar                                       | 35 Coffee maker   |
| 15 Roof mounted spare wheels                      |   |
| 16 Special low-temperature shock absorbers        |   |
| 17 Insulated body panels                          |   |
| 18 Roof rack                                      |   |
| 19 Steps on tailgate                              |   |
| 20 Power point in rear of vehicle for cooker etc. |   |
| 21 Heated rear screen                             |   |



ROVER  
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SHORT WHEELBASE LAND-ROVER BRAKES: From the first production Land-Rover in 1948 to the latest short wheelbase off the production line, the brakes have remained almost unchanged. To say the SWB brakes were very good and also poor would be ambiguous, but true. For a 1948 farm vehicle, not registered and used for transporting hay, the brakes would be very good, but for a 1976 recreation vehicle cruising at 60 mph on the highway they can leave something to be desired.

The brakes are drum-type with a diameter of 10". They have in each brake drum a single slave cylinder with expanding pistons driven from the center so as to push the two brake shoes into contact with the drum at the same time. This system is very simple and dates back to the original hydraulic brakes of the 1920's. The brake shoes are pivoted at the base and adjustment is made via an eccentric cam to move the shoe forward to the drum. The original wheel cylinders were made of cast iron although later models have alloy types. A good idea when replacing the two rubber seals in each cylinder is to coat the inside of the outside rubber boot of the cylinder to resist the entry of water. Water in the cylinder is the most common cause of seizure of the pistons thus rendering the brakes less efficient. The older models had a small ball bearing in the brake bleed nipple, but the later types have the more common pointed-end nipples. The writer thinks it worth the dollar or so to buy the small rubber cups to protect the ends of the nipples. The brake drums can be skimmed about .030" and extra size linings can be used to extend the life of worn drums.

The wheel cylinders are fed in the usual way with hydraulic tubing running along the chassis to the rear with a flexible tube connecting to the fixed tubing on the axle. The front has flexible tubing from the chassis to the wheel cylinders. The master cylinder on the early Series I's was mounted under the floor and was filled by a separate reservoir mounted next to the petrol tank, the two being connected with a metal tube. The master cylinder, although out of the way on the early models, suffered from dust, sand and water and on the Series II models was moved to the top of the firewall and worked with a pendant-type pedal. Although easier to check the level and out of the way they prove very time-consuming to service. The basic design of the master cylinders and their workings have remained very similar over the years., although later models of the Series II had slight changes in their master cylinders. A fault of the Series II was that the master reservoir filled both the clutch and brake cylinders. A leak in either would render the other useless.

The writer has noted over the years that when the brake system has been fully drained difficulty exists in bleeding the brakes again. Fluid does not pump very easily. One way is to bleed the four wheels separately and then start over again the second time, rather than working on each separate wheel until the air ceases.

#### TIRE TIPS:

- Be sure that your vehicle's front end alignment is properly set and checked regularly.
- Keep wheels balanced. Out of balance wheels may cause tires to wear irregularly. This can also cause a bumping or vibration of the tire.
- Check brakes and shock absorbers. Faulty or grabbing brakes cause flat and bald spots on tires. Faulty or worn shock absorbers cause irregular tire wear and lead to other mechanical irregularities.
- Keep tires properly inflated. Proper inflation is the most important single factor in prolonging tire life. Under inflation causes extra flexing of the cord body which results in breaks and separation of the cord fabric. Over inflation reduces the tire's capacity to absorb shocks and increases the possibility of damage from striking sharp objects. Check tire pressure with an accurate gauge at least once every two weeks. Appearance alone is not a reliable indicator of tire pressure.
- Heavy feet kill tire tread life.
- A steering stabilizer will help stop shimmy problems.
- A wet tire cuts easier than a dry one. When driving amidst sharp rocks in the rain slow down, your pocket may appreciate it.
- By deflating your tires you get extra traction in sand and mud. Do not forget to reinflate before speeding off down the highway.



New member Edward Judge Jr. of Sunderland, Massachusetts recently wrote to us regarding some of Andrew Goldfine's inquiries in the November, 1976 issue of the Newsletter. He advises that helper springs are available at many parts stores for increasing wiper arm contact tension, or alternatively some could be made out of music wire of suitable diameter.

As for Andrew's electrical problems: It is almost always easier and better to convert to a Chrysler 60 amp or Delco 55 amp alternator and always much cheaper, as a rebuilt unit with separate voltage regulator (solid state) would cost about \$55 as compared to the \$ $\frac{1}{2}$  million for the Lucas unit. A good auto electric shop can install the unit for about \$50, cheaper if you mount it physically (they would probably need the circuit diagram of the Landy's electrical system since they more than likely wouldn't have it). Alternators up to 105 amps are available for people who feel that they need them, although the 60 amp units are much cheaper.

Removal of the interior bulkhead and camper conversion is nicely covered in the November, 1976 issue of Four Wheeler.

If the oil cannister (for the oil filter) leaks around the rim check and see if there aren't two gaskets in the gasket slot since this always leaks. I assume that there are no deep nicks in the rim of the cannister.

Posi carriers use standard ring and pinion gears and can be interchanged, but it is much more practical to buy the entire unit and save your other standard differential in case the posi fails in the future, which they can do. Used posi rear ends are going for around \$250 to \$300 in these parts.

Finally, sound level can be significantly reduced by gluing fiberglass under the hood and on the firewall and waterproffed with clear acrylic enamel. Urethane foam in the tool box and under the middle seat reduces gear whine, along with a can of STP to the gearbox and transfer case. 140 Weight oil also helps in the rear end differential. Foam rubber (I used 1" thick foam") sheet on the interior rear floor and fender wells and a thick coat of rubber undercoat, especially in the fender wells, completes the package. You could clean and rustproof the frame as well. The thicker fluids reduce whine in most rear-ends.

MORE RESPONSES to Andrew Goldfine's letter in the last issue of the newsletter: Ernest Thor of San Bruno, California has the following comments.

Regarding the Lucas alternator conversion from 16 ACR to 20 ACR: Unless one is a fanatic/purist he shouldn't use Lucas ignition parts at all because they are expensive and not particularly well-designed. Consider getting an American-made alternator and exterior regulator. If you have a winch and a lot of electrical accessories you can get a 60 amp alternator and regulator for about \$45.00. Replacement is easy and a lot cheaper than Lucas parts. A simple modification of your current bracket and perhaps a different belt size would do the trick. If your electrical needs are really heavy consider two batteries with a dual charging system. These can be purchased at most good camper stores.

Coil over shocks will not raise your suspension. For information on coil over shocks write to Dick Cepek, 9201 California Avenue, South Gate, California, 90280. Enclose a stamped, self-addressed envelope for a reply. Also send for his free catalog since he has much off the road equipment. You can buy American shocks for your Land-Rover; for example, the Monroe 500 series will fit. Also, J.C. Penny has shocks that will fit: their super-heavy duty shocks run about \$10.00 as compared to \$30.00 for heavy duty Rover shocks.

If you want to raise your Rover a couple of inches, the quickest way is to lengthen your front and rear spring shackles by a couple of inches. Just remove them, cut them in half and weld a two-inch piece between the two halves.



You can also raise your vehicle by re-arc-ing your springs. When this is done you have to specify to the "Spring-bender" that you want to change the free camber of your springs by "X" amount. But, when you go to put them back in the extra free camber makes it a real chore to install the springs. Remember that the driver's side springs have one inch of extra free camber more than the passenger side springs to compensate for the driver. Do not get them mixed. You can tell them apart by the length of the metal strap brackets on the spring itself. I have had the rear springs re-arc-ed on my 109 with good results. I did not change the free camber, but did have added two  $\frac{1}{4}$ " thick main leaves. This made the ride a little harder and increased load capacity by about 500 kg.

Mac, a friend of mine who has had considerable experience in Rovers all over the world has an 88 that tips the scale at about 2300 kg. curb weight and over 2400 kg. (5000 lbs.) fully loaded. Mac replaced all of the  $\frac{3}{16}$ " leaves with  $\frac{1}{4}$ " leaves. This does a fine job for his heavy 88.

If your springs are a little shot then adding an extra leaf or re-arc-ing and adding an extra leaf will raise your vehicle. At first it will be very high, but will settle in about a month's time.

There are a number of commercially available sun roofs and air vents complete with instructions. There are many in California. Looking in some off-road periodicals will help.

If you are not a purist you can buy a spin-on oil filter conversion that takes about a  $\frac{1}{2}$  hour to install. The spin-on kit costs about \$40.00 and can be purchased thru Zagata in New Jersey. I have one and in the five or six oil changes that I have made with it on it has paid for itself many times over in less aggravation and more convenience. And no leaks either. Plus, the filters can be bought anywhere since they fit many American iron.

I have eliminated better than 50% of engine and road noise in my 109. I left the original rubber mats in and covered them with inexpensive foam rubber-backed carpeting. I put the carpeting on the floors front and rear and in the fire wall (passenger side, of course). This includes the transmission tunnel as well. Also, I covered the rear wheel wells with indoor-outdoor carpeting - a lot of road noise used to get through here. In addition to the carpets I also insulated all five doors with fiberglass insulation. This reduced the noise level a little and keeps us warmer on our winter trips. More carpeting is installed around the front seat box and under the front seats as a lot of engine and gearbox noise gets through here as well. If one is really ambitious one can install an asbestos material under your hood since this will reduce a lot of engine noise. You can use your existing floor mats as templates.

My advice is to stay away from anything more than 32" in overall diameter. If you have a 4:7 to 1 ratio a 32" tire will raise your gear ratio approximately 25 to 30 per cent, or about the same as the Fairey overdrive unit. 36" tires would put you way out of sight and make breaking axles a pretty common event because of the extra leverage. 36" tires would also reduce your off-road performance a great deal because your low gear in low range would be about the same as third gear in low range. Those bigger tires are for vehicles with more power. But who needs power when the Land-Rover has a 40:1 ratio in low, low gear? Don't be jealous of the nerds with their macho trucks that don't want to scratch their flaming paint jobs.

My friend Mac has installed Clifford Research Headers. We did the job in about 4 to 5 hours with a few beer breaks. At first, Mac noticed a little extra acceleration but had nothing really astounding to report. However, a few weeks later he found that he also had a badly burned valve, which certainly affected performance. The headers come complete and ready to install with some tiny exceptions of poor design. Mac found the flaws and modified accordingly: Just below the exhaust ports of cylinders number two and three there is on the standard exhaust manifold two butterfly type nuts that hold the manifold in place. Clifford Research has provided two small steel tubes that could vibrate loose. This is solved by drilling and tapping a  $\frac{1}{4}$ " hole, cutting the provided tube and bolting it to the header. This works well. Also, the header extends about 3 inches below the center



horizontal frame member, which will make it the first thing to go the very first time you high center off the road. A few cuts with a torch can correct this malady and good exhaust flow can still be maintained and your header will not be lower than the horizontal frame member. When and if you install these headers you should do away with your complete exhaust system because the standard muffler and exhaust pipe will negate most of the efficiency that the headers deliver. You should go to a 2 or 2 $\frac{1}{4}$ " pipe throughout and a good muffler to use is a Corvair Turbocharger type. It has one baffle. It's OK to use glasspacks but I prefer a quieter running vehicle. The Corvair muffler is widely used with header systems with good results. With the Corvair system you can expect a throatier sound, but just as quiet and with higher efficiency. In preparation for the headers I ordered I've installed the above system and have noticed the tiniest bit of extra power and I'm really anxious to get the headers on.

I'm told that the standard roof capacity of a Land-Rover is about 455 kg. I have seen two Land-Rovers that were rolled; they were both 88's. The roofs and side panels were dented and viewed from behind the vehicle the top and sides leaned a bit to one side. In neither case did the roof collapse, and only a few windows were broken. In my estimation, a rollbar wouldn't be necessary with a standard Rover hardtop unless the vehicle rolled down a long hill and rolled over three, four, or more times. Of course, any vehicle is safer with a roll bar.

Well, I hope that this rather long-winded letter has helped or sparked an Idea. Presently on the agenda Mac and I are planning a Canada to Mexico off road run through the Scablands and deserts of Eastern Washington and Oregon, Nevada, and Southern California. So I have to get back to work on my 109 4 cylinder to make some repairs and preparations.

WET IGNITIONS: Moisture on the ignition system can result in short circuiting and "tracking" of high voltage direct to ground instead of the spark plug. Moisture on the engine is common, coming from creek crossings or wet roads, but this alone usually will not cause any problems.

The trouble starts with oil vapour or leaks from the engine settling on the block and ignition system. Oil itself normally does not affect the ignition system because it is an insulator, but when dust and water are absorbed into the oil it will conduct electricity and the problems begin.

Electricity takes the line of least resistance so spark can run directly to ground instead of through spark plugs, so the engine won't start.

Breakdowns of this type can be prevented by simple maintenance, most importantly, keeping the engine and ignition system clean and repairing any oil leaks as they occur. However, if a breakdown of this type occurs, it can be repaired by wiping around the spark plugs, high tension leads, distributor cap and coil to remove any deposits.

These components should be sprayed with a water repellent if available, but when using repellent always wipe off excess moisture and dirt before spraying. The repellent gets between the water and the component, restoring insulating properties and, consequently, the correct electrical path.

The inside of the distributor cap should also be wiped to make sure it is clean and dry; however, water repellent should not be sprayed inside the distributor cap or distributor since this could cause other problems.

POOR CURRENT: Poor current also causes problems and should be checked regularly by starting at the battery and checking all ground points, including the gas tank gauges, lights, etc. Your vehicle may be new but rust is highly resistant to the passage of electricity and a loose connection, or perhaps a poorly soldered lug, soon causes rust formation. If you are not sure that the connection is a good conductor remove it, clean it with emery paper and replace with a spring washer under the bolt, screw or nut. Remember, 12 volts doesn't give you much power to play with, so every connection counts.

FOR SALE: 1970 Rover 3500S, 42,000 miles, new Michelin radials, all power, new brakes, garage kept, serviced by excellent mechanic, engine and body perfect. Best offer. Must see. Contact: Joseph F. Peterson, 201-925-6541 day or night, ask for Joe.

FOR TRADE: One set of four 15"x 8" Land-Rover rims that I would like to trade for a set of standard 16" Land-Rover rims. My 15" rims are almost new and they are perfectly color-keyed to the off-white color of the Land-Rover hardtop. These undamaged rims have a stock Land-Rover center welded into a domestic outside rim and they are just as strong, if not stronger than the factory wheel. They were originally purchased from Dick Cepek in South Gate, California. Additional rims can be purchased from Cepek that are identical. I wish to trade my four Cepek rims for the 16" Land-Rover rims and, if possible, purchase a fifth and sixth 16" rim. Anyone interested in such a trade contact: Walter C. Banta (Todd), 1566 W. 158th Street, Gardena, California, 90247; tel: 213-324-4516.

FOR SALE: 1964 Land-Rover Series IIa Station Wagon. Completely overhauled. New: exhaust system, gas tank, five heavy duty tires, new paint (this Landy is green with a white Safari top), clutch, engine overhauled, new brake shoes all around, new front axles, and many spare parts. There has been more than \$4000 invested, but will sacrifice for \$2500. Must see to appreciate. We are moving and must sell this gem fast! Call after 6:00 P.M. (215) 766-7642.

FOR SALE: 1973 Series III Land-Rover 88. This vehicle is equipped with many extras, including a Warn M8000 winch, Fairey overdrive, AM/FM radio, cassette player, spin-on oil filter kit, Warn hubs, headlight guards, full length roof rack, complete instrumentation, etc. The paint on the wings is scratched; otherwise the car is in excellent condition. Also includes miscellaneous spare parts, rear axles, etc, Rochester carb, water pump, hoses, shop manuals, etc. Engine oil and filter have been changed at 2000 mile intervals. Price: \$5000. Contact: Earl Whitmore, 715 Creghan Avenue, Swarthmore, Pennsylvania, 19081 or phone: 215-543-3574.

FOR SALE: A distributor for a Series III Land-Rover: \$35. A Rochester carb conversion from a Zenith carb, used about 500 miles. I'll include a rebuild kit with an extra jet worth \$8. The carb is \$49.95, but I'll sell it all for \$45 and pay for shipping for both items anywhere in the lower 48 states. Contact: Thomas Gallucci, 113 Fern Street, Naugatuck, Connecticut, 06770 or phone: 203-729-6811, no collect calls please.

FOR SALE: Land-Rover 109 Pick-up Truck Petrol. In like-new condition. 35,000 original miles. This truck was found in a storage garage and appears to have had few off road miles. It is a 1966 Series IIa. Asking \$2150.00. Offers accepted. Contact: Fred E. Kusterer, Box 276 Route 1, Titusville, Florida, 32780 or phone: 267-7376.

FOR SALE: 1964 Land-Rover 109 Station Wagon Series IIa. This Rover has gone through extensive restoration. The restoration covers: engine rebuilt, new clutch and pressure plate, new front axles, new tires, new paint, new exhaust system, new gas tank, new brake shoes, etc., etc. Contact: Steve Kershner, 408 Kellers Church Road, Ottsville, Pennsylvania, 18942 or phone 215-766-7642.

WANTED: Transfer case with or without gearbox from a Series IIa or III 109 1 ton Land-Rover. Either exchange for Series II 88 gearbox/transfer box or out-right purchase desired. Other proposals invited. Contact: Andy Goldfine, 120 Aspen Lane, Duluth, Minnesota, 55803 or phone 218-724-9424.



FOR SALE: Used parts: Stripping a Series IIa 88 petrol station wagon for parts. The engine threw a rod through the block at 53,000 miles. At this writing only the driveshafts and the front left fender have been sold. Contact: Fred Kusterer, Box 276, Route 1, Titusville, Florida, 32780 or phone 267-7376.

FOR SALE: Five complete 2000TC's: one 1967 and four 1969's, some with Air, etc. Prices from \$500 and up depending on the car and equipment wanted. Also three other complete cars for spares as well as some new parts. Contact: Roberth Hooks, Box 293, Chico, Texas, 76030 or phone 817-644-5102.

WANTED: 8 x 10 Black and White or Color photos of Land-Rovers only, 88 or 109. Contact: Barry Beck, Cahill House, R.D. 2, Benton, Pennsylvania. Also, any Land-Rover owners in the area are invited to stop in with Barry and his wife, Sandy, to talk Land-Rovers and view some of the beautiful scenery in their area.

FOR SALE: 1967 Land-Rover 109 6 cylinder Station Wagon. Body virtually perfect. 65,000 miles. Recent paintjob, absolutely minimal rust. Rebuilt trans. presently being installed. Unusuall fine condition. Also has spare 3 litre engine with fresh rebuild: bearings, rings, valves. Call for further details.  
1967 Land-Rover 88 Diesel. 23,000 original miles. New exhaust system complete, springs, starter solenoid. Superb condition throughout. Canvas top with tail gate. Color: Limestone. Warn hubs, side transfers, locking glove box. Call for price and details.

1965 Land-Rover 109 Station Wagon, 4 cylinder petrol. 23,000 original miles. Restored. New paint job, front mounted capstan winch, extended front bumper with double jerrican brackets, Rover roofrack. Exceptional condition. Call for price.

Parts: four jump seats from mid-60's Land-Rover, Safari roof for 88, scarcely used capstan winch, used differential - good condition, used transmission, used freewheel hubs, used engine - low mileage - stored 7 years in dry cellar in wood crate - just had valve job, rebuilt engine - IIa petrol: balanced, magnafluxed crank and rods, micropolished crank, new pistons, bearings (cam and crankshaft). Rebuild done by qualified shop - took over a year and is guaranteed 6,000 miles. Available with or without rebuilt head, used IIa radiator - perfect condition, complete set 16" rims with 7:50 tires, miscellaneous parts too numerous to list. Call with your needs.

Call: Charles Kellogg, Jr., 11 State Street, Marblehead, Massachusetts, 01945, 617-631-7818

FOR SALE: Autobook Rover 2000, 2000TC Workshop manual, in good condition. \$5.00 post-paid. Contact: Arnold Betbeze, 1305 Scout Road, Hixon, Tennessee, 37343.

FOR SALE: 1961 Land-Rover 109 Station Wagon, 4 cylinder petrol. Engine is out of vehicle; crankshaft and bell housing are missing. Some new parts, including: manifold, gaskets, pistons, rings, service manuals. Contact: Joseph Dolan, 711 N. Harrisburg Avenue, Atlantic City, New Jersey, 08401. Phone: 609-344-2648 after 5:00 PM.

FOR SALE: 1972 Land-Rover 88 Hardtop. 25,00 miles at present time. Immaculate condition inside and out; everything works. Sand color. Five radials. Both workshop manuals. Extras. Wintered in garage. Call Steve Sefcik collect at 217-367-0013 or write: 127 Scottswood Drive, Urbana, Illinois, 61801. \$4200.00.

SECOND THOUGHTS FOR A LAND-ROVER OWNER: Please cancel my ad to sell my Land-Rover. I have decided to keep the vehicle and use it for the purpose I originally intended and purchase a conventional sedan for family use. I also thought that some of the members might be interested in some observations and experiences I've had in the past 65,000 miles.

First of all, I am convinced that the largest factor contributing to Land-Rover troubles is the British-Leyland dealer. Never have I experienced such incompetence, ignorance and disregard for the customer. Rather than take several pages to describe my troubles with the dealer, suffice it to say that his short-cut methods and general incompetence resulted in his failing to properly correct minor problems and even worse, introduced three major troubles that ran over the warranty period. I eventually fixed them myself for a total cost for parts of about \$250 and much of my labor.

Disregarding dealer-induced troubles, I find the Land-Rover is no more or less reliable than the other conventional cars I have owned, although considering some of the uses the vehicle has been put to, exact comparisons are difficult. I have replaced the following parts that my experience suggest to be normal wear items: brakes - twice; tires - once; alternator brushes and windshield wiper blades - twice; two turn signal bulbs, back-up light bulb, brake light bulb, all wheel cylinder seals, clutch slave cylinder seals, battery, fan belt, all radiator and heater hoses, muffler, intermediate pipe and all shock absorber bushings. I also replaced the following parts that I feel should not have failed: rear axle half-shaft and seals, differential pinion seal, wheel brake cylinder, rear door lock, oil pressure sender unit - twice. I eventually installed a mechanical gauge. In addition, I replaced the front shock absorbers which collapsed after I winched a stuck vehicle up a hill. I should also add that the Land-Rover does not seem to suffer from a malady that seems to affect many other cars, namely, having hinges, cables and other minor items wearing or working loose.

I have come to the conclusion that oil leaks around the gearbox and engine sump are impossible to correct, although, in my case at least, very little gear oil is lost. Engine oil consumption is greater than on any other car I have owned - about one quart per 600 miles, depending upon the circumstances. Compression readings are virtually identical to when the engine was new - about 145 to 150 lbs.

In my opinion, the Land-Rover is especially noteworthy in the following regards: rust-free body, body and frame integrity - i.e. no leaks, squeaks or rattles, good economy, durable clutch, easy on tires, strong suspension and effective cooling system. It also starts very easily in below zero weather.

On the other hand, I feel that the following problem areas also exist: inadequate ventilation in the summer with the metal top, axle breather valves prone to stick, oil leaks and repairs in some areas are unduly lengthy because of inaccessibility of components (e.g. the gearbox) Another problem involves the difficulty in obtaining parts although thanks to Atlantic-British and Zagata 4WD Center this is not the problem it would be if we had to depend on the jokers at British-Leyland. In fact, if it were not for the prompt, efficient and courteous service and helpful advice from these firms I would sell my Land-Rover very quickly.

As far as the Land-Rover "mystic" is concerned, I have known two people who have seen and used these cars in their native habitat - East Africa and the British Army. Their comments plus gleanings from hunting and travel books indicate to me that the "mystic" is largely relative to its use in these lands and circumstances. Generally, the reputation was developed in countries where years of arduous use and low mileage at low speeds were normal and not in situations existant in the United States, where the typical 4WD is driven at high speeds through a less demanding environment and traded in every few years.

I originally purchased my Land-Rover as an adjunct to my hunting, fishing and camping excursions. Shortly afterwards, my station wagon began its gradual process of disintegration and the Land-Rover gradually became the family car. Quite frankly, I feel that it



is unsuited for this purpose. On the other hand, the car's ability to negotiate streams, beaches, mountain roads and swamps greatly increased my outdoor opportunities and I decided to never be without a 4WD. Faced with the needs of a growing family and the need for a larger, more practical vehicle I seriously contemplated selling my Land-Rover. I investigated the current 4WD offerings of other manufacturers and found no significant changes over the choices of four years ago, except, of course, the price. In my opinion, most of the larger 4WD's still require some modification and installation of costly after-market accessories to give them the same off-road potential as the Land-Rover. So, I decided to keep my Land-Rover and purchase a conventional car for everyday family use. Overall, I've been satisfied with my Land-Rover, but the original dealer problems would probably stop me from ever buying another British-Leyland product.

FOR SALE: Spare parts from a 1967 Rover 2000TC. Write your needs. Contact: Carl L. Roberts, 508 Iris Drive, Security, Colorado, 80911.

FOR SALE: 1968 Rover 2000SC Automatic, entire left side damaged, missing windshield. \$100 takes it. Contact: Mrs. Margaret Greathouse, 108 W. Long Street, Akron, Ohio or phone: 216-384-8645.

FOR SALE: 1971 Land-Rover 88, Series IIA petrol Station Wagon. 60,000 miles, original owner. Has been maintained faithfully and the vehicle is in good condition. Recently installed 8 ply 7.00 x 15 tires, mud and snow commercial grade. \$2200.00. Please contact: Roy Henderson, 2632 Guilford Avenue, Baltimore, Maryland, 21218 or Call: 301-235-1614.

FOR SALE: I am selling parts from two 1968 Rover 2000TC's. Write your needs. Contact: Carl Untamo, 858 Old York Road, Somerville, New Jersey, 08876 or call 201-722-5957.

RENEWAL MEMBERS:

David I Barrett	Suite 2-F, 430 W 24th Street New York, New York, 10011	1970 3500S
Barry Beck	R.D. #2, Cahill House Benton, Pennsylvania, 17814	1967 109, 1973 88
Nathan Borodinski	517 Central Avenue Newark, New Jersey, 07107	1968 2000TC, 1969 2000TC
George L. Brown	8297 Delhi Road Charleston Heights, South Carolina,	1971 2000TC 29405
William D. Burk	827 13th Street Hermosa Beach, California, 90254	1969 88
J. Burchfield Cartwright	7 Elysian Way East Liverpool, Ohio, 43920	1968 2000TC
E.T. (Tom) Clarke	1540 Blair Court Middletown, Ohio, 45042	1968 2000TC
Thomas Coffey	226 E 10th Street Oswego, New York, 13126	1974 88
Floyd Coleman	Box 204 Richmond, Kentucky, 40475	1969 2000TC
G.K. Crooks	13318 Graham Road S.W., Route 1 Pataskala, Ohio, 43062	1974 88 Diesel
Robert A. Deardorff	7017 Ma Gill Wichita, Kansas, 67206	1972 88
Pat De Esposito	274 Brighton Avenue East Orange, New Jersey, 07017	1960 100
Creighton Dennis	779 B Madrona Walk B Goleta, California, 93017	1968 109 Dormobile
J. Dolan	177 N. Harrisburg Avenue Atlantic City, New Jersey, 08401	1961 109

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Verl Dotson	344 Blue Mountain Way Colorado Springs, Colorado, 80906	1970 3500S
James Easterday	RR#1, Kispiox Road Hazelton, British Columbia	1961 88, 1963 109
George Ellquist	Box 83 Whitmore, California, 96096	1956 86
John Finken	3500 Fernwood Avenue Los Angeles, California, 90039	1969 2000SC
James N Gabor	1325 4th Street S.E. Rochester, Minnesota, 55901	1973 88
Damasco Gomez	90 Edwards Street Quincy, Massachusetts, 02169	1968 2000TC
C. Henningsen	3411 E. Van Buren Phoenix, Arizona, 85008	
J. Thomas Henry	730 Gilpin Street Denver, Colorado, 80218	1969 2000TC
D.N. Hotes	1800 W. Hoteco Avenue Anchorage, Alaska, 99502	1973 88, two 1974 88's
Phillip Hunter	Box 20, Route 2 W. Brattleboro, Vermont, 05301	
Matthew Israelson	82-44 249th Street Bellerose, Long Island, N.Y., 11426	1974 88
B.T Jones	83 E. Weber Road Columbus, Ohio, 43202	1973 88
Dr. Arthur Karpinski	511 National Bank Building Auburn, New York, 13021	1973 88
John Kenney	2515 N. Atlantic Spokane, Washington, 99205	1972 88
Charles Klein	525 Pine Street Bethlehem, Pennsylvania, 18018	1974 88
Daniel Less	22848 Schafer Drive Mt. Clemens, Michigan, 48043	1966 109
John Liebson	Box 548 Crested Butte, Colorado, 81224	1972 88
Capt. Patrick Longan	HHB, 2d Bn, 5th FA Regt APO New York, 09455	1969 2000TC, 1970 2000TC 1970 3500S
Desmond Longford, M.D.	919 South Church Street Smithfield, Virginia, 23430	1965 2000SC, 1970 3500S 1967 88
David M. Lewis	3030 Hewitt Avenue, Apt. #230 Silver Spring, Maryland, 20906	1974 88
Bill Keienburg	P.O. Box 1312 College Station, Texas, 77840	1965 88 Diesel, 1968 88
R.B. Maguire	588 Tremblay Avenue Winnipeg, Manitoba, Canada, R2J ON8	1956 86
George E. Matas	139 Moorehead Road Sarver, Pennsylvania, 16055	1965 109
Henry McKee	1104 B 20th Street Santa Monica, California, 90403	1971 88
Walter Meissner	1163 Krameria Street #2 Denver, Colorado, 80220	1972 88
Dail Mortimer	850 Grove Street Denver, Colorado, 80204	1970 3500S
Carl A. Nowell	600 N. Pender Street Wilson, North Carolina, 27893	1966 2000SC, 1968 2000TC 1963 3-litre, 1967 109
Hugh Penney	54A Penobscot Street Orono, Maine, 04473	1973 88
Frank Pescherine, Jr.	4511 W. Paradise Lane Glendale, Arizona, 85308	1963 88



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James W. Pilcher, Jr.	508 Sheffield Drive Augusta, Georgia, 30909	1973 88
Calvin Pixley	43 Moulton Street Springfield, Massachusetts, 01118	1969 88, 1965 88 Diesel
David Place	219 Colcleugh Avenue Selkirk, Manitoba, Canada, R1A 0A4	1963 109, 1953 80, 1959 109 1968 88
Mark Pliskin, M.D	206 E Brown Street East Stroudsburg, Pennsylvania, 18301	1972 88
Eric V. Ramsing	1321 NE 63rd Seattle, Washington, 98115	1951 80
Michael Rigsby	1144 Washington #2 Oak Park, Illinois, 60302	1968 2000TC
Charles Ritts	107 Millis Avenue Bradock, Pennsylvania, 15104	1963 88
Carl L. Roberts	508 Iris Drive Security, Colorado, 80911	1967 2000TC
Harlan Sawyer	Route #1, Box 346 Swannanoa, North Carolina, 28778	1973 88
Robert Shevchik	143 W. South Hills Avenue State College, Pennsylvania, 16801	1967 109
James Simonds	246 Church Street Little Falls, New York, 13365	1972 88
Bill Slunt	Box 5959 Station A Calgary, Alta, Canada	1969 88
Dennis Staffne	125 Chippewa Drive Negaunee, Michigan, 49866	1974 88
Terry Stinson	Box 456 Port Aransas, Texas, 78373	1973 88
Wesley Stinson	Box U-176 University of Connecticut, Storrs, Connecticut, 06238	1962 88
William B. Sturtevant, Jr.	R.D. #1 St. Thomas, Pennsylvania, 17252	1972 88
Mick Sutter	P.O. Box 137 Shingletown, California, 96088	
Ernest Thompson	3754 Shasta Street, Apt. H San Diego, California, 92109	1972 88
Douglas Thornsto	Bessey Ridge Road Albion, Maine, 04910	1970 88, 1967 88
Robert G. Torgersen	3 Main Drive Nanuet, New York, 10954	1967 109
Anthony Touart	P.O. Box 32317 Washington, D.C., 20007	1973 88
James Edward Trogdon	P.O. Box 1525 Placerville, California, 95667	1951 80, 1953 80, 1961 88
Bob Ulanoff	31 Savage Road Kendall Park, New Jersey, 08824	1965 88
Katherine P. Van Norden	505 Wakefield Drive Metuchen, New Jersey, 08840	1973 88
John Van Vleck	989 Memorial Drive Cambridge, Massachusetts, 02138	1967 3-litre
James M. Whitcomb	1908 Curie Drive Severn, Maryland, 21144	1962 88
Earl Whitmore	715 Creggan Avenue Swarthmore, Pennsylvania, 19081	1973 88
Paul A. Wright	619 East Spring Street Whitehall, Massachusetts, 49461	1974 88
Thomas Yokubinas	111 Dwight Street New Britain, Connecticut, 06053	1974 88



NEW MEMBERS:

Dr. Claude Anderson	875 Estes Avenue San Antonio, Texas, 78209	1969 2000TC
Norman F. Barry	2243 Geneva Terrace Chicago, Illinois, 60614	1972 88
Jack Cascio	80 Brush Hill Avenue #12 West Springfield, Massachusetts, 01089	1971 88
John & Ann Cole	2419 Reba Houston, Texas, 77019	1969 2000SC Auto
Mary & Ron Dunn	River Road N. Edgcomb, Maine, 04556	1971 88
David Evans	4 Wildwood Terrace Winchester, Massachusetts, 01890	1959 88
Ward Faulkner	Route 1, Box 361 Center Point, Texas, 78010	1968 2000TC, 1968 2000TC
Alice S. Gray	15 Woodland Hills Tuscaloosa, Alabama, 35401	1970 3500S
Matthew Greenwood	7101 Point of Rocks Circle Sarasota, Florida, 33581	
Lawton D Gresham	2000 Dellwood Drive Greensboro, North Carolina, 27408	1967 3-litre Mk III Coupe
Donald Lynn Hickman	432 Palmary El Paso, Texas, 79912	1967 109
Woody Hering	425 Hedwig Houston, Texas, 77024	1970 3500S
Willard Hodges	721 Winfield San Antonio, Texas, 78239	1970 2000TC
Charles & Brenda Jackson	102 Persimmon San Antonio, Texas, 78213	1969 2000TC, 1970 2000TC
Jeffrey Jackson	137 E Mulberry San Antonio, Texas, 78212	1970 3500S
Steve Kershner	408 Kellers Church Road Ottsville, Pennsylvania, 18942	1964 109
Joseph E. Kinnebrew IV	13300 Beckwith Drive N E Lowell, Michigan, 49331	
George Loreda	4518 Tallulah San Antonio, Texas, 78218	1970 3500S
Dennis Medford	P O. Box 103 Nesbitt, Mississippi, 38651	1969 88
James Meek	1006 West Bridge New Braunfels, Texas, 78130	1970 3500S
Gerard Metzger	303 Oak Valley Drive San Antonio, Texas, 78227	1970 2000SC
Jack D Minch	9425 S.W. 80th Avenue Miami, Florida, 33156	1967 2000TC
Tom Newson	240 Bushnell San Antonio, Texas, 78212	1967 2000TC
Paul Eisman	7927 Quirt San Antonio, Texas, 78227	1970 3500S
Robert Johnson	5412 Peppertree Parkway Austin, Texas, 78703	1970 2000TC
Harry Michael	2107 West loth Austin, Texas, 78703	1970 3500S
Phil Hedley	26565 Mazur Drive Palos Verdes, California, 90274	1969 2000TC
Martin G. O'Brien	282 Piermont Avenue South Nyack, New York, 10960	1970 3500S



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James W. Oxton	5319 234th Street, R.R. 7 Langley, B.C., Canada, V3A 4R1	1966 88
Gary W Passmore	P.O. Box 774 Grand Coulee, Washington, 99133	1973 88
Milton H. Raffle	3224 W. Charter Oak Road Phoenix, Arizona, 85029	1962 109
Jim Sewell	9008 Cedar Trail West San Antonio, Texas,	1970 3500S
Larry Scavone	3130 Manila San Antonio, Texas, 78217	1968 2000TC
Dr. Vance H Smith	131 Chaves Avenue San Francisco, California, 94127	1965 109
Fred Spencer	311 Northridge San Antonio, Texas, 78209	1965 2000SC, 1970 3500S
Richard Tins	1503 Ridgecrest Austin, Texas, 78746	1969 2000TC
Stephen J. Tricano	15 Norwood Place Norwood, New Jersey, 07648	1969 2000TC
Dave Turner	210 Bergstrom Court Lackland AFM, Texas, 78236	1969 2000TC
David F. Wilson	117 Dexter Avenue #3 Watertown, Massachusetts, 02172	1964 88
Prentiss Willson, M.D	Chimal Popoca 178 Guadalajara, 5 Jalisco, Mexico	1968 2000TC
Connie & Jon Wood	315 Nottingham San Antonio, Texas, 78209	1969 2000TC
J F. Valdez	1401 Wilshire San Antonio, Texas, 78209	1969 2000TC