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THE ALUMINUM WORKHORSE

THE OFFICIAL PUBLICATION OF THE LAND ROVER OWNERS ASSOCIATION

VOLUME I, NUMBER II OCTOBER/NOVEMBER , 1984 COPYRIGHT 1984, ALL RIGHTS RESERVED

WE'RE OFF AND RUNNING

Thanks to your support, our Association is growing like a strawberry patch. Keep it up! Tell any Land Rover people you know who have not yet joined, that we need them too. Steve Zedekar, your ever faithful Secretary/Treasurer, has been running his tail off to keep up with the influx of new members. He loves it!

FROM THE EDITOR

I'm looking for a few tall tales. Anybody out there have a hair raising Land Rover epic and are just itching to tell it? Would you like to like to see your name in print? I'm interested in everything from A to Z, as long as it concerns Land Rovers. Don't worry if your last name isn't Hemingway, we'll whip whatever you send into shape together. Pictures of your Land Rover, good shape, bad shape, or inbetween, hell, I don't care, just send 'em in. Have you got any good ideas for fixing up a Land Rover? We can use them, too. Your homework assignment for tonight is to write an essay on "Why I Love My Land Rover".

UPCOMING EVENTS

- January 12 - Tech Session, Jim Allen's garage. Ever want to see a LR engine and gearbox torn down to bits and pieces? Here's your chance. Call Jim for information at, (916) 722-0401
- December 15 - Christmas Dinner. This pot luck affair will be held in Steve Hill's home. More information is upcoming. To find out more, call Steve or Janet at (916) 393-3767.
- May 18 & 19 - Trek to the Mendicino Forest. Bay Area folks, this is your chance to show up en masse without driving across "half a continent" to get there.

TO OUR FAR AWAY MEMBERS

For many of our members living throughout the U.S., the newsletter is your link to us and vice versa. As time progresses you will find it an excellent way to exchange information with fellow members. However, when it comes time for planning activities, many of you are left out of the best experiences, meeting other Association members on Treks and Picnics. For those of you outside the Central California area, I want to introduce a concept in getting outdoors with others in the Association that you may or may not know.

With Steve Zedekar, our Secretary/Treasurer, I will monitor memberships in all geographic areas looking for five or more

FAR AWAY MEMBERS (cont.)

in a particular area, I will contact those people and ask that one becomes the regional Activities Coordinator. Our plan is to expand the newsletter as needed to give these regional Activities plenty of space to announce and report activities in their area. What do you think?

Please remember that we are intent on making this Association a vital link for information, recreation and social activities for the whole family. The results, however, rest with all of us, wherever we may be.

Steve Hill, Activities
Coordinator

WELCOME ABOARD !

NEW MEMBERS

- | | |
|--|--|
| #7-Jeff & Anna Hill, Sacramento, CA
'70 88" | 25-Tom Liebertz, Portland, OR
'65 109" |
| 8-Raymond Pryor, Stockton, CA
'60 88", '62 109" | 26-William Ivec, Fort Bragg, CA
'62 88" |
| 9-Marvin & Nancy Mattson, Reno, NV
'68 88", '67 Dormobile | 27-Tom & Diane Gannon, Lewiston, CA
<u>Atlantic British Parts</u> |
| 10-Jay & Donna Finklestein, San Mateo, CA
'73 88" | 28-Alan Myers, Sterling Forest, NY
'69 88" |
| 11-Ted Harwood, Van Nuys, CA
'62 88" | 29-Charles Wallace, Mill Valley, CA
'69 88" |
| 12-Gordon Perrott, Seattle, WA
'57 109" | 30-Dan Anderson/Kathy Griffiths, Davis, CA
'69 88", '72 88" |
| 13-Thomas Eckles, San Diego, CA
'61 88" | 31-Pat Teske/Tom Cuevas, Tucson, AZ
<u>Rovers West</u> |
| 14-Paul & Opal Massengale, Sacramento, CA
'65 109" | 32-Douglas Saunders, Berkley, CA
'63 109" |
| 15-Charles & Martha Shoun, Brigham City, UT
'73 88" | 33-J.H. Bowen, M.D., Louisville, TN
'65 88" |
| 16-W. Howard Morrison, Jamestown, RI
Unknown (let us know, Howard!) | 34-Jeff Little, San Leandro, CA
'71 88" |
| 17-Tony Bonanno, Asheville, NC
'71 88" | 35-Roger & Bobbe Conant, Spokane, WA
'68 88" |
| 18-Dave Bramer, Gainesville, MO
'73 88" | 36-John Friedman, Emeryville, CA
'69 88" |
| 19-Glen Foster, Hingham, MA
'71 109"-Ex NATO | 37-Geoffrey Tobin, Los Gatos, CA
'62 109", '73 88" |
| 20-Bruce Larson, Virginia City, NV
'66 88", '74 88" | 38-Herman Karl, Menlo Park, CA
'69 88" |
| 21-Michael & Carolyn Leverland, San Francisco, CA
'68 109" | 39-Walter Banta, Gardena, CA
'72 88", '68 109" Dormobile |
| 22-John Heneage, Monroe, MI
'67 109" SW, '67 109" PU | 40-John Osgood, Lander, WY
'66 88" |
| 23-Richard Egan, Long Beach, CA
'66 109" | 41-LTC John C. Taylor, USAF, Yokota, Japan
'67 109" |
| 24-John Hanna, Denver, CO
'58 88" | |

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CONTRIBUTING EDITOR: Steve Hill

PRINTING: Capitol Biscount Printing

SUMMIT LAKE

by Steve Hill



(ROW OF ROVERS- RAY PRIOR'S, FRONT)

The morning of August 18th came rather slowly for my family and I as we checked on those last minute items before leaving on the latest Association trek to Summit Lake in the California Sierra Nevada mountains.

The state fairgrounds at Cal Expo was the appointed meeting spot for those in the area or for those coming east. When I arrived, I found members Jim and Carrie Allen, Steve, Jean and Becky Zedekar, Ray Prior and Paul and Opal Massengale already there. Paul and Opal were unable to attend the Trek but turned out

anyway to say good bye and good luck. That's what I call "Land Rover Spirit".

After a few mechanical misadventures enroute, the convoy arrived in the outskirts of Truckee to find Jay and Donna Finklestein had beaten us there in "go anywhere with everything" style with their very well equipped LR 88". Another owner, Charles Van Landungham, arrived minus his Land Rover to have a chat. After a pit stop, we left the asphalt and civilization behind and began the Trek in earnest.

We traversed the rocky, rutted trail upwards with no real trouble. Parts of the trail were very dusty and in one area, where the trail went thru a vast field of skunk cabbage, the dust was hub deep and a little horsepower was required to get thru it.

A short distance from the lake, Jay and Donna's 88" experienced an uncomfortable list to port in the deeply rutted trail. With some human outriggers, Jay nursed his rig thru with no trouble.

When we arrived at the lake, we were greeted by Mark Andrus and his girlfriend, Christe, who had arrived the night before in Mark's '56 86".

The afternoon found Jean Zedekar, Carrie Allen and Donna Finklestein swimming in the lake. They were joined in the water by the canine members of our little group. How they survived in that snow fed water is beyond me. I tested it with the tip of my finger and it was C-O-L-D! Jim and Jay were seen aboard the Finklestein "yacht", midlake, fishing. I heard Jim ask how much water needed to be inside the boat before



(WHOA! PORT LIST!)



(JAY FINKLESTIEN, DEMONSTRATING THE USE OF HIS SHOWER SETUP. THIS IS THE "PG" VERSION)

he should begin to get concerned.

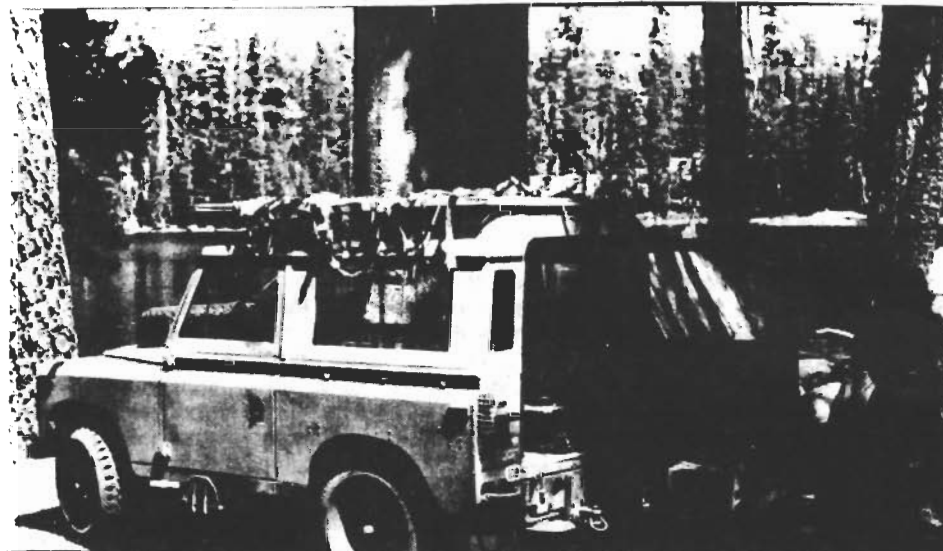
The next morning, we were greeted with another crystal clear day. After breakfast, we all went our separate ways on the many miles of hiking trails in the area. Midmorning brought Gerry Cole and his red 88" to camp for the day. Member Dan Anderson also came up the hill with his 88" to spend the Sunday with us.

Ray Prior trudged off into the bush with his .22 Ruger slung over his shoulder and wasn't seen for many hours. The man does like to explore.

Jim A. and Jay F. reported the fishing to be "lousy". They fished both days and didn't get even one bite. There were fish, you could see them jump, but they didn't seem to be interested in what was being offered.

Steve Z. and Jay left early with Mark Andrus close behind. We stayed to wait for a cooler reception in Sacramento. Just before the next group left, we managed to rescue a bow hunter and his oversized GM 4X4 pickup. His battery had died. It was most satisfying to see Dan Anderson's diminutive 88" alongside this up-lifted behemoth breathing life into the poor thing. We saw this vehicle on the way down, proceeding very slowly over the off camber portions of the trail. His "lift kit" did him very little good on this type of terrain.

The trip down the hill was uneventful for us.



(THE HILL'S CAMP NEAR THE LAKE, SUNDAY MORNING)

Steve Z. had a very unnerving experience on the way back. He lost a front wheel. Fortunately, Mark A. was there to help and there was little damage.

So, with the excitement over, we headed home with another fine Land Rover outing under our belts.

PINK would be a bad color for Marine or Special Forces patrol vehicles: There would be a mutiny. But the Special Air Service (SAS) — legendary for innovation — has deployed a whole family of pink-painted vehicles.

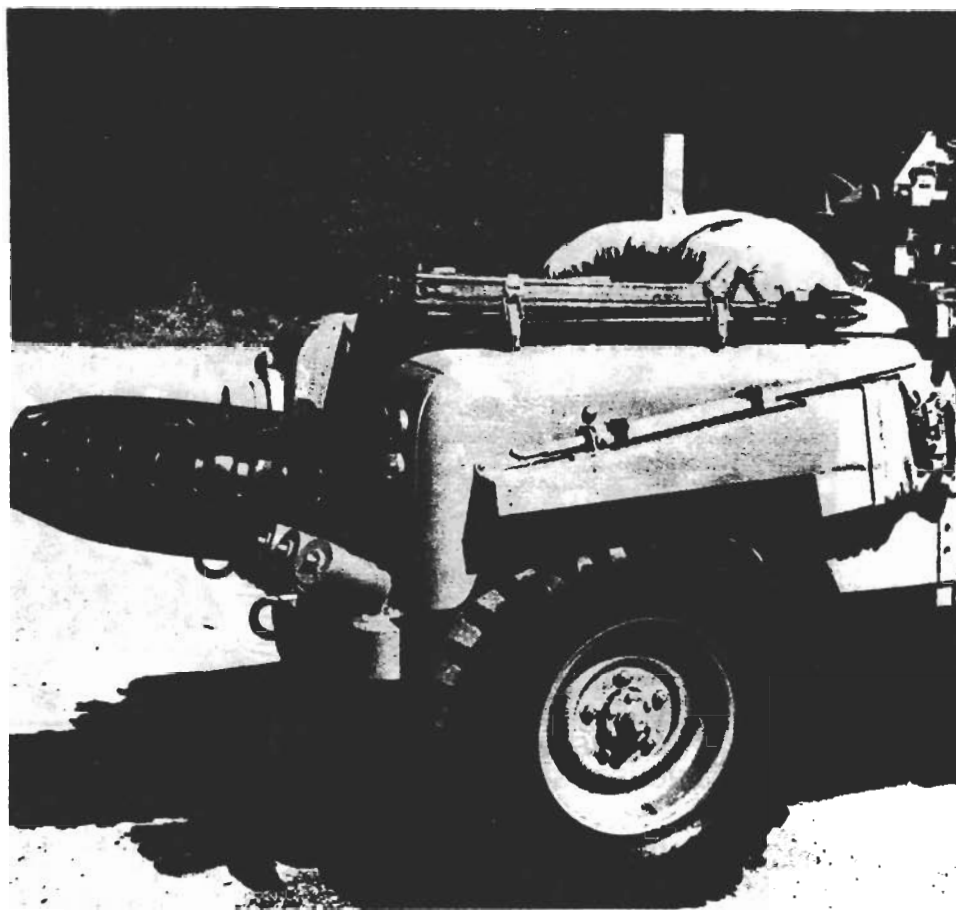
Land Rovers modified by SAS mechanics were painted a delicate fuchsia-tinted pink before issue. This pink paint was developed in the '40s by DuPont for the U.S. Army Air Force to camouflage vehicles on the ground in the African desert from air reconnaissance and attack. The nickname of these vehicles — Pink Panther — comes from their distinctive color as well as from the famous cartoon character.

The SAS itself was also born during WWII's desert war. It was formed in Egypt in 1942, the brainchild of the now-legendary David Stirling, who was then a subaltern of the Scots Guards. Stirling envisioned small parties of raiders striking deep behind enemy lines, disrupting communications and destroying aircraft and supply dumps. Dropped by parachute, the men would move on foot to their targets, attack and then link up with reconnaissance patrols of the Long Range Desert Group (LRDG). However, the first raid went disastrously wrong due to adverse weather, which scattered the raiding party and left a number injured and missing.

The ever-resourceful Stirling then managed to acquire several U.S.-made jeeps, which became available in 1942, fitting them with machine guns front and rear. These vehicles were used with devastating success against airfields and installations in Africa. After D Day they were used in Europe in a reconnaissance role, linking up with resistance groups and operating in advance of the main Allied armies to give mobility to small teams of SAS soldiers, who organized vital sabotage and intelligence-gathering missions.

These units used Land Rovers modified by SAS mechanics. In the mid-50s a trial Land Rover (short wheelbase) was fitted with twin Vickers-Berthier aircraft MGs on the front and a .30 Browning MG on the rear. It carried a bazooka as a crew weapon, but the design was not adopted. In the mid-60s when hostilities in the Arabian Gulf flared up, the need for a standardized SAS vehicle was again recognized.

In 1964 the SAS drafted a set of requirements — the result of studies and field experience — to convert the MK9 Land Rover to an SAS Pink Panther. In Britain the development of fighting vehicles is vested in the Fighting Vehicle Research Division Establishment (FVRDE). SAS-adapted Pink



SOF ARMOR

THE PINK PANTHER

SAS Patrol Vehicle Puts Claws in Desert Ops

Text & Photos by David Mills

Panthers had been overloaded as a matter of SOP, due to the nature of their operations. So FVRDE took the SAS recommendations and concentrated on reducing weight without sacrificing user requirements.

A vehicle design was formally adopted in 1967, and the first of 76 vehicles were delivered in 1969. Apart from minor modifications for the different operation theaters, the vehicles were identical. Some idea of the attention to detail given by the planners can be seen from the official de-

scription of the vehicle.

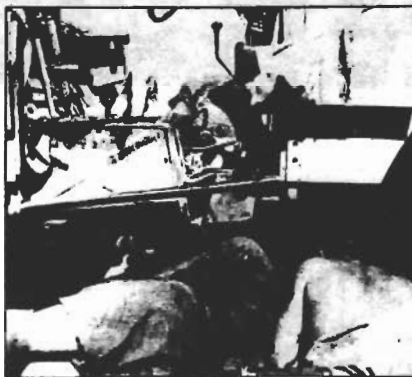
The Pink Panther is a three-quarter-ton Land Rover MK9 (later MKII) with a long wheelbase. The aluminum body is fitted with armament, pyrotechnics, navigation and camping equipment for extended operations. Standard equipment includes two L7A2 GPMGs, a Carl Gustaf antitank weapon, L1A1 Self-Loading Rifles (FALs) fitted in scabbards on the front wings (fenders), three two-compartment grenade holders, four sets of three



Believe it or not: This was DuPont's idea of desert camouflage during WWII, applied to most-recent-issue SAS Land Rover.

Long-range patrollers work on temporarily disabled Rover in Iran in the early '70s. SAS affiliation betrayed by round weapons holster attached to front fender.

Mk3 short-wheelbase Land Rover in SAS dress: Late '50s version bristled with Browning 1919 A4, twin Vickers-Berthier aircraft MGs and a Bren.



smoke dischargers and a signal pistol.

Navigation equipment includes a sun compass, illuminated magnetic compass and a theodolite. More recently, sophisticated Navsat equipment has also been used. Communications equipment consists of type A43 and A123 radios. Two 40-gallon auxiliary fuel tanks and stowage for two one-gallon tins of engine oil give the vehicle a range of about 1,200 miles. The ancillary equipment includes a camouflage net, camping and cooking equipment, stowages for water containers and two pressed-steel planks, two shovels, a pickaxe, and tow-rope to facilitate unditching. The vehicle suspension is strengthened and both differentials have fitted guards. The desert versions are fitted with large-section sand tires.

SAS squadron vehicles are operated by the mobility troop, a crew of approximately 16 men, who specialize in overland movement by whatever means is compatible with the task at hand. Crewmen are trained in all aspects of vehicle operation and normally stay in the troop for the duration of their SAS service. The majority of training is done in the United Kingdom but — as with the rest of the British Army — overseas exercises are held regularly, vehicles and other stores and equipment being stockpiled in what are known as "prepositioned training packages."

In recent years, Pink Panthers have also been deployed to Northern Ireland, Belize and the Arabian Gulf, but they have not been used in major conflicts, because their high visibility and unwieldiness make them easy targets for modern battlefield-surveillance equipment and because better means of moving men and equipment are available. When used, however, they normally operate in patrols of three: a command vehicle, which also carries the ground-to-air radio, the navigation vehicle and a supply vehicle, crewed by two men. The others usually have two-man crews.

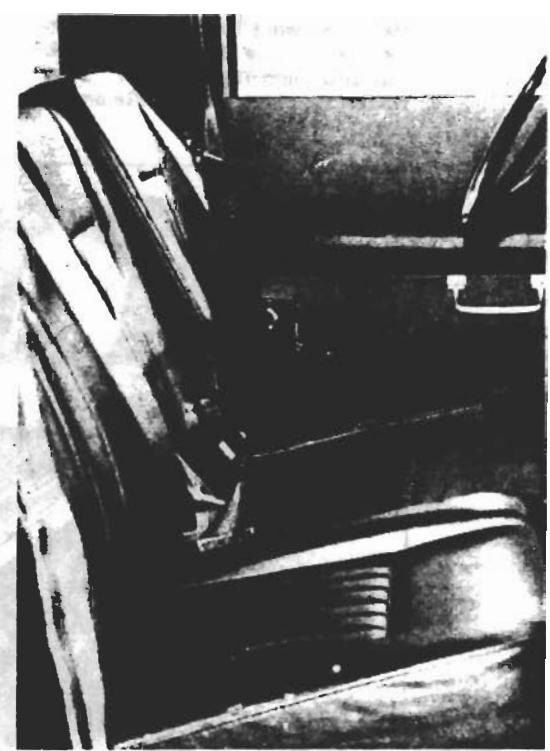
Pink Panthers have now become unsuitable for the SAS's covert role and for current NATO thinking. Other SAS vehicle options which have been considered include use of the new Rover V8 (one criticism leveled at the old vehicle was its lack of power), changing the armament to miniguns (dropped because of the need for excessive ammunition) and use of two-wheeled vehicles. Private manufacturers have also moved into the field of patrol vehicles, the oil-rich Middle East being a lucrative market. Perhaps they will produce the next successful generation of Pink Panthers. ✕

ROAD TEST

LAND-ROVER



TWENTY FIVE YEARS HAVE



Strictly a tool box on wheels, it can never make the grades as a recreation vehicle

One gripe is poor ventilation, especially up front.

By BARRY LOPEZ

■ In 1948 when the British Army introduced the Land Rover to the rest of the world I was only three years old. I do not retain, therefore, any memories of excitement over the vehicle here in the States but I have never heard any stories to that effect anyway. Post war automotive thought wasn't exactly keying on plywood seats and the smooth-riding suspension system of a 19th century buckboard. In 1947 the weirdos who wanted that sort of thing were buying surplus jeeps and Dodge Power Wagons from the Army. No one but Texas ranchers, Arab oil riggers, Australian sheepmen and African diamond miners paid the advent of the Land Rover much attention.

Over the years, however, while Americans entertained themselves with chrome arabesques, V-8 engines, decorator trim packages and lethal tail fins, the Land Rover changed not a whit and it began to exert an influence. It kept its four-cylinder engine, its flat windows, its hood-mounted spare tire and its Spartan interior; twenty-five years later it was still better at doing what it was designed to do than anything else that had come down the pike.

There is a certain satisfaction in that, getting the thing right the first time around. A vehicle like the Land Rover—denizen of the African veld and a sort of *sine qua non* of adventure in the outback—encourages an inordinate pride of possession on the part of an owner and allows him to participate in an institution: driving a vehicle that is like no other, one that represents a sort of first in its class. When you slip behind the wheel of a Ferrari Berlinetta or jump into an old Morgan or climb into a Land Rover you are dealing with more than mechanical contrivance. You are dealing with one of the touchstones of man's passions.

In an age of frivolous, useless and almost compulsive change in automobiles, at a time when there is as much passion evident in a Chevrolet Biscayne as there is in a TV dinner, the Land Rover has become a sort of refuge for those who pine after the clean, well-made things.

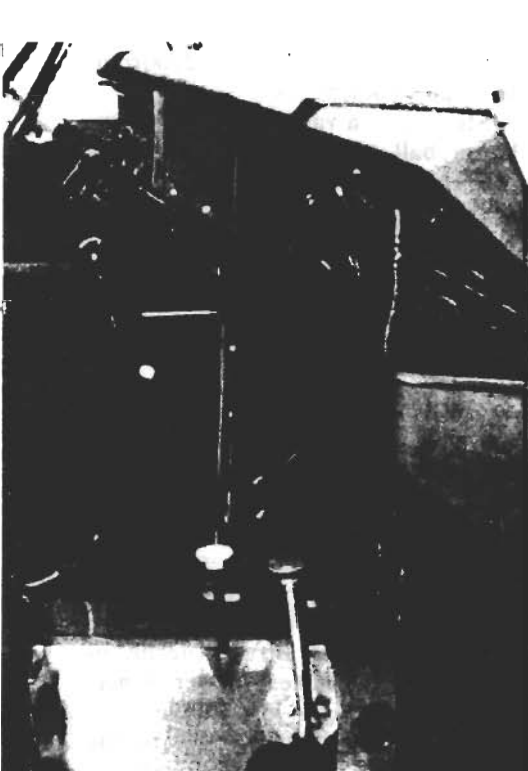
But the times are changing. And just as the sun now sets on the British Empire, so, too, can one see the twilight beginning to gather around the venerable Land Rover. United States safety and emission control import regulations have eaten away

its interior and choked its engine. Consumerism has synchromeshed its gear box. And last year it was its far younger brother, the Range Rover, that was chosen to run the Darien Gap in Panama to forge the last link in the Pan American Highway, not the old war horse. It manages to hang on because it remains a sensible vehicle—good gas mileage, built to last, a tool box on wheels, compact—but in the gadget happy world of recreation vehicles, where it must make its living in this country, its life is a difficult one.

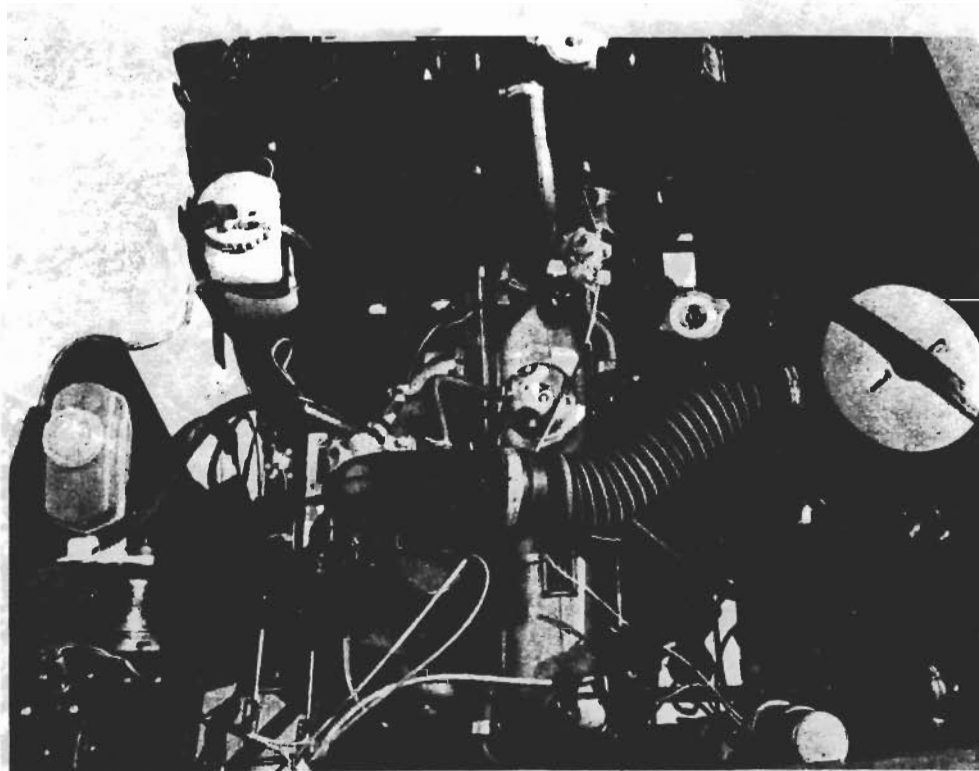
It is therefore with some feeling of compassion that one enters this vehicle as a test driver. This is not a vehicle test anyway, in the sense that whatever praise you give it has already been heard a hundred times in the mud and boulders of some hell-hole in East Africa from somewhat more seasoned sources, and whatever curses you have to level—well, you feel a little odd cursing the thing. Cursing it for its lack of acceleration is like cursing the National Geographic Society because it doesn't sponsor drag races.

This is not to beg off drawing any conclusions from a test drive, but to set the stage for the nature of my

NOT DIMINISHED IT YET THE TIMES MAY FORCE IT OFF THE ROAD



There are no floor vents.



Engine is an in-line 4-cylinder, OHV developing 67hp at 4250rpm. It's watercooled.

comments: they should be considered more as observations than criticisms. In other words, if you are interested in buying a vehicle like the Land Rover, I will be trying to point up some things I think you should be aware of.

We settled on eastern Oregon for our five-day test drive because it offered both mountains with summer snow and hot, dry desert country. We engaged the vehicle in no performance tests because we felt, frankly,

that that would be ridiculous. For the record, it cruises noisily at a little over sixty but very comfortably at fifty; it accelerates well enough to insert itself safely into a stream of freeway traffic but you have to be a little more patient when it comes to passing trucks on winding roads. It encourages the sort of driving that contributes to fuel economy, at 15mpg one of its strong points.

For those who've never had the



There is power take-off in all directions, front, rear and to the side as well.



Instrument panel is straightforward with a full

pleasure: the drive train consists of 4.7:1 axles, a 2-speed (1.15/ 2.35) transfer case, and a 4/ speed transmission (1/ 1.5/ 2.22/ 3.68/ reverse 4.02). Final drive in four-high (top gear, high range of the transfer case) is 5.41. Final drive in low-reverse is a famous 44.3. Between those two extremes are eight other gear combinations.

The engine is an in-line 4-cylinder with overhead valves displacing 1395 ci and delivering 67hp at 4250rpm and 115 ft/ lb of torque at 2500rpm. It's water cooled.

Steering is a variable ratio recirculating ball type requiring 3.5 turns lock to lock.

The vehicle is built on an 88-inch wheelbase, is 66 inches wide, 77 inches tall and front and rear track are both 51.5 inches. Clearance at the differentials is 7 inches and the turning circle is 38 ft.

Suspension is leaf spring with telescoping shocks. Both the axles are fully-floating and the payload is 3/4 of a ton (driver, 2 passengers and 1000 lbs of equipment). The body is aluminum alloy and galvanized steel to combat corrosion.

There is power take-off to the front, the rear, and to the side as well, and a considerable array of technical equipment—winches, power generators, drilling rigs—is available.

We found driver visibility to the sides and rear good but forward vision a bit pinched; with the way the roof comes down and the dash comes up it takes some getting used to. The

LAND-ROVER



complement of gauges.



Wheelbase is 88 inches, width is 66 inches, height 77 inches and it has a 7-inch clearance.

rear view mirrors, inside and out, are small and also take some getting used to. At night the flat glass, front and rear, creates confusing images in the rear view mirror and makes quick judgment difficult.

The instrument panel is straight-forward—speedometer, odometer, oil pressure gauge, fuel gauge, water temperature gauge, ammeter. An interest in the proper fitting of human fingers to mechanical buttons and levers (the science of ergonomics) is evident in a well-designed manual choke lever and in the toggle switches that control lighting and heat/defrost controls. The interior light, by the way, is very bright.

Partly as a result of redesign to meet US safety regulations and partly as a result of a British penchant for well-designed but poorly assembled vehicles, the interior has a slightly flaky feeling to it. For example, the dimmer switch, turn signal and horn have all been incorporated into one lever that feels very delicate in the fingers (and is awkward to reach and operate). Another interior annoyance is that the best foot room is to the right of the transmission hump, where a British driver's feet would be. The left hand drive model leaves the American driver with nowhere to put his feet. Side windows are of the sliding type and difficult to operate through if you're flipping a coin at a toll gate machine or trying to photograph.

The major interior problem—and it is a direct result of a padded safety

dash which blocks the flow of air from the hood vents—is poor ventilation. There are no floor vents and with the hood vents virtually castrated the front of the vehicle can become very stuffy. Without the protection of the tropical roof, the dead air in the front of the vehicle would have been almost unbearable in the desert. It's virtually impossible to drive along with a breeze either in your face or across your hands or over your legs.

Another problem is the size of the gas tank. At 12 gallons it is just too small.

In the process of testing the Land Rover we did drive through creeks and over difficult terrain—always on old road beds—and this is of course where the vehicle shines. It rolls along smoothly between 30 and 40 mph, very quietly, with good reserve in the gear box and is almost effortless to steer except over rock debris and heavy ruts. It neither threatened to overheat nor to stall out on steep climbs nor to give up under a heavy load. It just asked in its own way, for a lower gear and threw its shoulders into the harness again.

It is an easy vehicle to get in and out of and it's designed to slip through tight spaces with no damage (viz. the completely recessed door handles and the breakaway rear view mirrors). Getting people and things in and out of the back is facilitated by the best rear entry design in a four-wheel drive.

We spent one day of our test work-

ing with three friends pulling logs out of the woods and dragging them to a creek where we hoisted them into place in the process of building a bridge. Most of the work was done with the aid of a winch but we depended on the Land Rover's maneuverability in the woods for towing the logs out and its guts for dragging them to the creek over rough ground. Toward afternoon it began to rain and things got so slippery we had to anchor the vehicle in order to use the winch effectively (there are two tow rings located up front and a pintle hook in the rear). We finished the job in the glare of the Rover's headlights and those of another truck. When we got the last timber into place we wound in the winch line and drove the Rover across the new bridge to the rain-dampened cheering of the men, their wives and the kids who'd showed up from neighboring farms.

The Land Rover, crusted with mud, its interior littered with woodchips, axes, tow chains, choker cables and gas and oil cans felt very, very comfortable after the work was done, like a favorite pair of leather work gloves. The vehicle, grunting its way through its chores that day like an old rhinoceros, swimming a wide spot in the creek, its spinning tires hunting for a bite in the creek bottom, brought to mind a very pleasant perception: the automobile as a means to an end, not an end in itself. With a machine like this you could not only go somewhere but you could do

(Continued)

LAND ROVER

Article reprinted from the 1/74 IMPORT CAR magazine.

something constructive.

We used the Land Rover to build a bridge, to pull trailer loads of hay from field to barn, to get from one rocky, lava strewn place in the eastern Oregon desert to another, to get over an old road to a fishing lake—all things you could not have done in an ordinary car. Some of the jobs, like the bridge work, were purely utilitarian jobs that brought a sense of satisfaction with a good job done with excellent tools. But the admiration that began to emerge on our part was somehow at odds with the American driving experience. What this vehicle did was not what most drivers wanted to do with an automobile, or even a recreation vehicle. In the American mind the four-wheel drive must climb vertical walls and cruise at 80mph on the Interstate, a combination that doesn't, of course, work very well. What the Rover was was a vehicle for the person who'd taken all the non-sense out of his automotive perceptions. If you bought this thing you'd better be a person to put it to work or after a while you were going to feel a little foolish, a little phony.

With the import regulations homogenizing the vehicle to the level of sameness found in its American counterparts, there's a chance that in five years you'll be able to buy a Land Rover that, maybe with the exception of the spare tire on the hood, looks and feels and maybe even performs just like a new Blazer or Ford

Bronco, so you can drive it back and forth to the market and maybe take it out and put it in four-wheel drive on a back road once in awhile and feel no guilt. But I doubt it. I think, and hope, that the British will just let the Land Rover die in peace out there on the shores of Africa's Lake Chad. In its place will come its flashy younger brother, the Range Rover, and at least one contemporary automotive legend won't die under the pens of padded dashboards. If the Land Rover were a personality it would detest

writers of such rules because those are the people who take the risk out of everything, and when the risk is gone a man turns to jelly under, sometimes, the very fanciest of coverups.

A new Land Rover will run you about \$4200. It will be difficult, at best, to locate one. In the first six months of 1973 British Leyland sold 750, all that were available in the States. One hopes they all went to people with a need for their special talents and enough understanding to appreciate them. One hopes that something so fine did not go to waste.

LAND ROVER REVUE

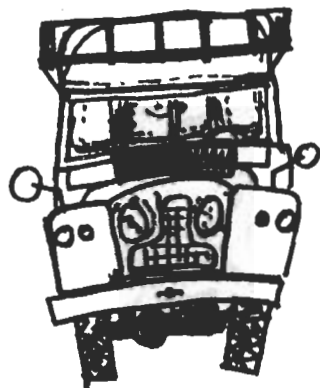


(above) Glen Foster sent us a picture of his nicely done '71 Ex-NATO 109". Glen lives in Hingham, Massachusetts.

(left) Bruce Larson's ZEBRA 1. The "Zebe" is well known throughout California and Nevada. Bruce is a Deputy Sheriff in Virginia City, Nevada.

We welcome photos of your Land Rovers. We will print as many as we receive on a space available basis.





TUNE UP

PART TWO

To get the most from your Land Rover tune-up, a careful check of the distributor is in order. This can be done with the dist. in the vehicle but a much better job can be done with it removed. It is also much easier to work on the bench than hanging over a fender.

REMOVING AND INSTALLING THE DISTRIBUTOR

Land Rover engineers made this task an easy one. The drive cog at the bottom of the distributor shaft will engage only one way. Before loosening the clamp bolt at the bottom of the dist. housing, take note of where the vacuum advance unit is pointing. Make a mark if you like. It will be much easier to get the engine started if the timing is close to where it was. Also, mark the dist. housing so you will know where the rotor was pointing when you removed it. Once you've done these two things, the rest is a simple remove and replace (R&R) operation.

Two tips to be aware of are; leave the clamp bolt a little loose so that you can adjust the timing once the engine is running without fussing with a wrench; you may have to twist the rotor a bit, one way or another, to get the cog to engage with the slot.

CHECKING THE TIMING ADVANCE MECHANISMS

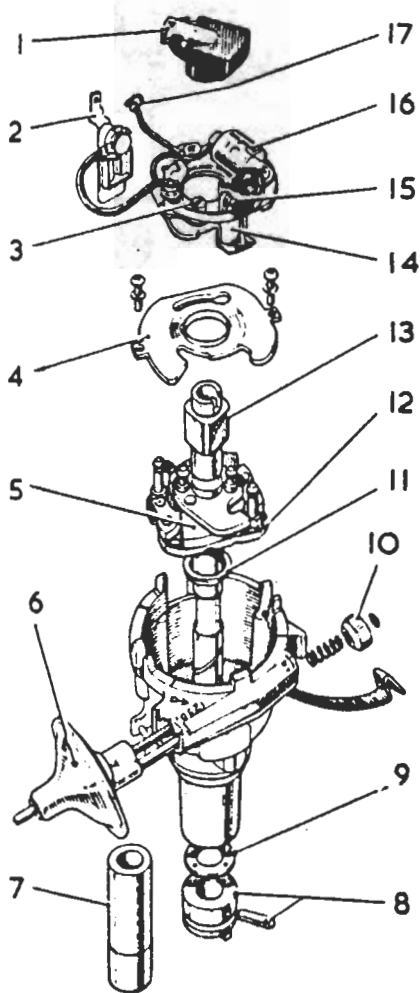
There are two timing advance mechanisms built into the LR distributor. One is a mechanical device that works by the centrifugal force of the distributor shaft as it spins. The other is a vacuum operated setup that advances as the throttle is opened. The later emission controlled Series III LRs had a variation of this. They used a vacuum retard device that retarded the timing at idle. Most of the vehicles so equipped have, no doubt, been converted to the advance type dist. by now. The emission related parts for those later Series IIIs are no longer available, so discussion of their workings is pointless.

Since most of you don't keep distributor testing machines in your garages, we'll discuss the methods of checking a dist. that the home mechanic can use.

To check the mechanical advance, hold the drive cog securely (a vice works well) and twist the rotor clockwise and release. It should operate freely and snap back when released. For continued free operation, a few drops of light oil down the center of the shaft will lubricate the inside parts.

The most common problems are with rust or old, dried lubricant jamming the works. This can be remedied by removing the breaker

ADVANCE MECHANISMS (cont.)



- | | |
|---|---------------------------------|
| 1 Rotor arm | 9 Thrust washer |
| 2 LT terminal | 10 Vernier adjustment nut |
| 3 Fixed contact plate securing screw | 11 Distance collar |
| 4 Contact breaker baseplate | 12 Baseplate |
| 5 Centrifugal advance control weights and mechanism | 13 Cam |
| 6 Vacuum advance control unit | 14 Contact breaker moving plate |
| 7 Bearing bush | 15 Contacts |
| 8 Driving dog and pin | 16 Condenser |
| | 17 CB earth connector |

FIG 1

The primary wiring (primary denotes the low tension wiring; the small stuff) should be looked at for frayed insulation and bad connections. The harness attached to the plastic insulator that slips into the side of the distributor is a common source of trouble when it is allowed to get frayed. A bare wire could kill the engine at a critical moment if it grounds out. This little harness and insulator assembly is replaceable and is commonly available. Remember, the Land Rover distributor is virtually the same unit that is found in non-electronic ignitioned MGBs so parts aren't a real problem.

There is a ground wire that attaches to the breaker plate and grounds to the distributor body (see figure 1). This is an often forgotten item. It ensures a good ground for the points. If yours is missing, you can make one out of 18 gauge wire and solder one end onto the breaker plate and use a crimp on eye fitting for the other end at the distributor body.

plate assembly and liberally dousing the advance assembly with a WD-40 type penetrating oil. You may also be required to work the mechanism by hand until it does loosen up. In the case of broken, missing or worn out parts, distributor replacement might be the only way out.

The vacuum advance is easier to check out. Simply suck on the open end of the chamber. It should hold vacuum and the breaker plate should rotate towards the chamber. Simple enough, eh? The most commonly overlooked problems concerning the vacuum advance are not with the unit itself, but with the hoses or lines from the carburetor. Check them well.

The breaker plate itself is also subject to wear. This is usually easy to detect by trying to move the top plate at right angles to the bottom. A little movement, maybe three or four thousandths of an inch, is acceptable. Too much play will cause a dwell variation; i.e. the points will open a different amount each time. Variation can also be caused by wear in the shaft bushing (see fig. 1). Side to side movement of the shaft in the housing, more than a few thousandths of an inch, will cause variation. Some distributors have replaceable bushings and others may not.

OTHER CHECKS

In this realm, we will look at cam lobes, wiring harnesses and ground straps.

Without proper lubrication, the rubbing block on the points can eventually wear out the cam lobes. It will result in a dwell variation and it is usually very noticeable scoring on the lobes themselves.

INSTALLING POINTS AND CONDENSER

There are two methods of adjusting points. The old "standby" method uses feeler gauges and is accurate according to the skill of the user. The other method uses a dwell meter and is nearly fool-proof. There are some general rules to keep in mind when replacing points. The first is; avoid getting grease or oil on them. Any foreign matter that gets between them can cause arcing and point failure. A clean piece of white paper works well to clean the contacts. Just run it thru until it comes out clean. Another little item to remember is to make sure your feeler gauge is clean before you run it between the contacts.

Installing the points and condenser is pretty much an R&R job. The only tricky part comes when you attach the wiring and condenser to the points. It's easy to accidentally ground out the system when hooking up the wires. Look at figure 2 for the correct way of doing this.

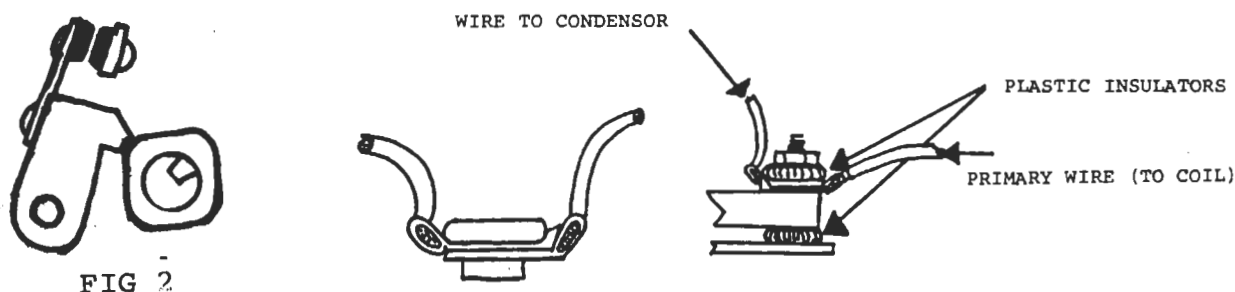


FIG 2

Your first step in setting the points with your feeler gauges is to bring them up onto a lobe (see fig. 2). Once accomplished, use a screwdriver in the slot on the base plate to open or close the gap to match the specification. Always use the wider of the specifications given. If only one spec. is given, use a two thousandths (.002) larger feeler gauge. This procedure will allow for the closing of the points as the rubbing block wears. Apply a small amount of distributor lube onto the cam. Axle grease won't do. Cam lube can be purchased at any auto parts store and one tube will last for years.

Adjusting the points with a dwell meter requires turning the engine over with the starter as you do it. Make sure the Rover is in neutral before you start. Hook up the meter with the red lead attached to the + side of the coil and the black lead grounded on the engine (the acorn nuts on the valve cover are a good spot). Have an assistant crank the engine while you watch the meter. Since the cap is off at this time, the engine won't start. Just watch your hands. If they get too close to the cap, you may get ZAPPED while the engine is cranking. Anyway, note the reading on the meter and adjust the points accordingly. Remember, the higher the dwell reading, the narrower the point gap. The wider the point gap the less the dwell reading. After you have correctly adjusted and locked down the points with the set screw, double check the reading. Sometimes, as you tighten the screw down, you will change the adjustment slightly.

FINE TUNING

It's time to install your freshly gapped spark plugs. Now is also the time to tie up any loose ends. Double check mentally and visually all the work you have done up to this point. This

FINE TUNING (cont.)

can really pay off if you catch a boo-boo. Even pros make mistakes. The trick is to catch them before they lead you down a merry path.

Start the engine and let it warm up. As you wait, you may hook up your timing light according to its instructions. If you don't have one, try and figure out how to get one. This is a necessary item for tune ups.

With the engine "ticking over", disconnect the vacuum advance and check the timing with the light. See figure 3 for details on the timing marks. If you find it hard to see the mark, a little nail polish (cherry red is "in" these days) on the pulley notch will make it easier to see. Once you've turned the dist. whatever way needed and have the timing spot on, tighten the clamp down and recheck.

Due to the design of the Land Rover combustion chamber, the timing can be advanced considerably without an audible "ping" or "spark knock". Just because you can't hear it, that doesn't mean harmful things aren't going on in there. With the fuel commonly available as "regular" in the U.S., the timing can be advanced to about 6 degrees with no trouble. The octane readings on figure 3 are not accurate for today's gasoline. In the seventies, the method for determining octane ratings was changed and the new reading come out slightly lower than the old. The 90 octane is comparable to the 88 octane of today. For the sake of your pistons and valves, don't get carried away with advancing your timing unless you plan to use premium fuel.

Carburetor adjustments are the next order of business. The air filter should be hooked up (when was the last time you cleaned it?) to make the adjustments. If you have a dwell meter that has a tachometer, set it for the 1000 rpm scale. Idle speed is largely a matter of personal preference or necessity. Many prefer the engine to idle higher to avoid stalling in ticklish off road situations or for winching purposes. Anything in the range of 600 to 950 is OK. So, set your idle speed according to taste. Mixture adjustments come next and this is where a tachometer is really useful. Screw the mixture adjustment in (clockwise) until the idle speed starts to drop and the engine begins to get rough. Then, turn the screw back out (counter-clockwise) and watch the tach. Do it slowly and when the idle speed settles down at the highest steady point, stop. Generally, from the lean roll point (rough idle) it's about $1\frac{1}{4}$ turns back out to the correct idle mixture. This can vary from engine to engine so go ahead and run the screw out a little if the idle doesn't feel right. Repeat the idle adjusting process if you have doubts about something. Keep working till the LR is purring like a kitten.

THE TEST DRIVE

This is the time when you find out if you did a good job. If you notice any drivability problems, recheck what you did.

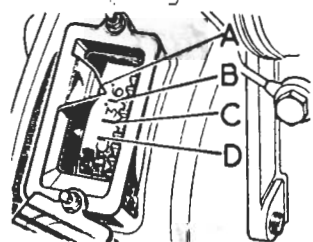


Fig. 4.5 Timing pointer on flywheel housing (earlier engine)

- A Timing pointer
- B 60° mark, align when using 90 - 96 octane fuel
- C 30° mark, align when using 80 - 85 octane fuel
- D TDC mark, align when using 74 - 76 octane fuel

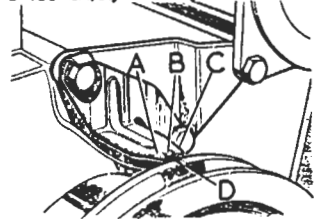


Fig. 4.6 Timing pointer on front timing chain cover (later engine)

- A 60° tongue, align when using 90 - 96 octane fuel
- B 30° tongue, align when using 80 - 85 octane fuel
- C TDC tongue, align when using 74 - 76 octane fuel
- D Mark on crankshaft pulley, align with appropriate mark

TEST DRIVE (cont.)

If it all checks out then you may have some problems that you haven't bargained for. Watch next issue of THE ALUMINUM WORKHORSE for a troubleshooting chart to help you over any unexpected problems.

TOOLS

Have you ever tried fixing your Land Rover with no more than a crescent wrench, pliers and a screwdriver? If you have, it was probably in some last ditch, gotta get home, breakdown situation where you had no choice. Well, at home, you do have a choice. Proper tools can take a lot of the aggravation out of doing your own repairs. Tools can be purchased a few at a time and, taken care of, can be passed on to heirs. Service manuals should be considered as tools of the utmost importance. If you can, buy the factory manuals for a "clean set" to keep inside to study in a clean environment. For outside use, buy the HAYNES Land Rover workshop manual. At only about \$12, it's a fantastic bargain. It has almost all the information contained in the factory manual and is written for the home repairman. Look at the list below and check how many of the tools you have.

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SPARK PLUG GAPPING TOOL
GASKET SCRAPER
TIMING LIGHT
DWELL, TACH, VOLT, OHM METER

COMMON AND PHILLIPS-
SCREWDRIVERS
PLIERS
REMOTE STARTER SWITCH

A FINAL WORD

This article was written to clear up some details to those of you who have had bad luck with tune-ups. The article was designed to be used in conjunction with a service manual. It can answer any little procedural questions that might come up that are not covered in this text. Good luck on your next tune-up!

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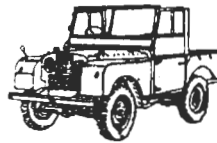
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RANGE ROVER

SCOTTY'S CORNER

With Jim "Scotty" Howat



Send your questions to:
SCOTTY'S CORNER
8176 Villa Oak Dr.
Citrus Heights, CA 95610

Dear Scotty,

I'll be coming back stateside in January to Scott AFB with my '67 109". Chicago, reportedly, is passing legislation to forbid sales of leaded gasoline within the city limits. The rest of Illinois may eventually follow suit. What can I do, short of installing a diesel engine, when the day comes that I can no longer get leaded gas?

LTC Cal Taylor
Yokota AFB, Japan

Dear Cal,

Don't worry too much about it, Cal! It may shorten valve and seat life to use the unleaded petrol but it won't wreck your engine. Years ago, when I first came to the U.S., I used to use a cheap grade of gas that had no lead in it. I had no problems using it in Land Rovers.

Since you'll be more or less forced to use it, go ahead. When the time comes to do a valve job, use Stellite valves and seats. They are much tougher than the originals and would be a good improvement in any case. It won't be long until the whole U.S. goes lead free, so we may as well get used to doing without it.

Dear Scotty,

I've been fighting oil leaks from my hub seals for as long as I can remember. I replace the felt seals and they always end up leaking. Many of the Land Rovers I look at have the same trouble. Is this common? Are there some tricks you can share to help me fix this problem?

Steve Hill
Sacramento, California

Dear Steve,

No tricks, lad, just some advice. Most times, these leaks are caused by the axle splines being worn and a wee bit loose in the hub. When you replace the seal again, run it down with the nut and washer then pull the washer out again and put a light coating of silicone sealer on the side facing the seal and reinstall it along with the nut. Before you put the dust cap back on, use a bit of silicone on the inner lip of it as well.



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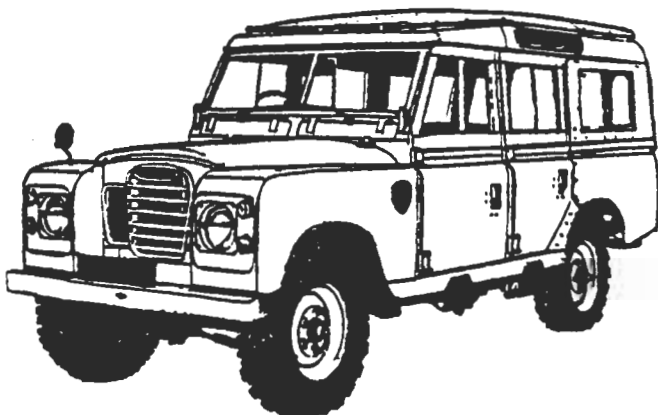
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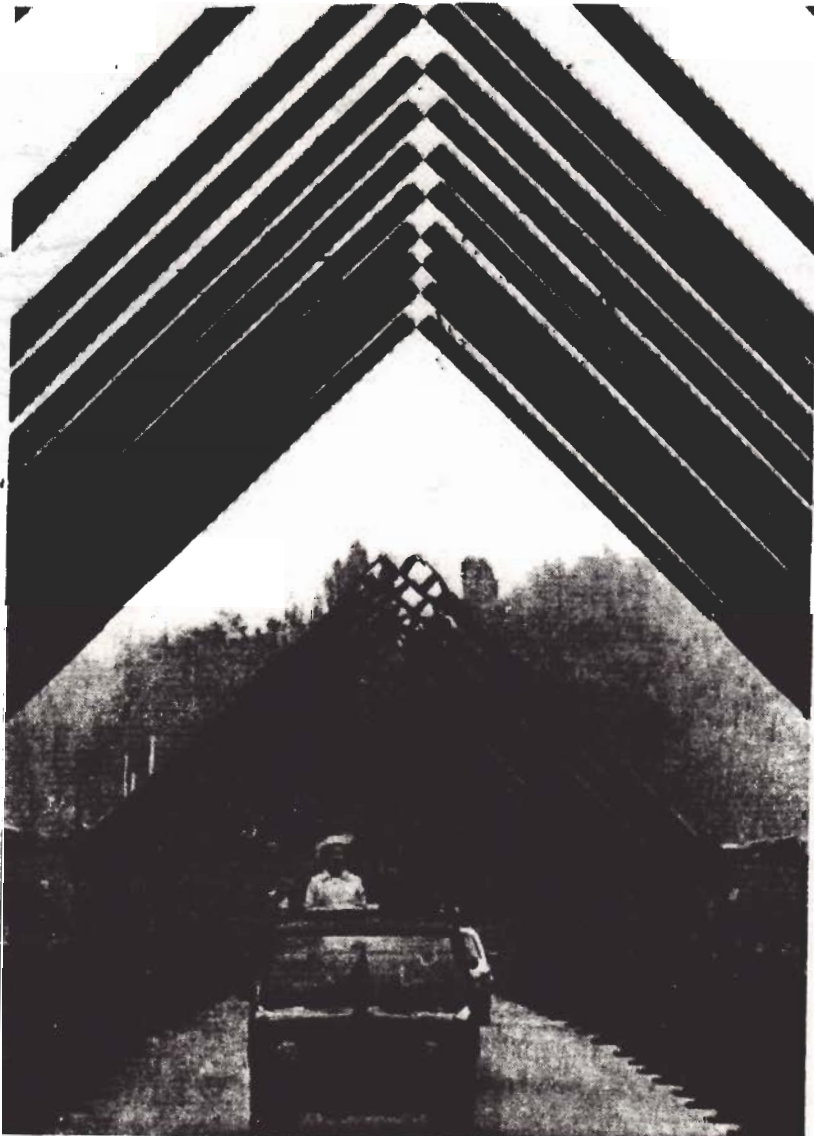
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POSTSCRIPTS AND MISCELLANY



GOD SAVE THE QUEEN!
Notice that Her Majesty is riding in a Range Rover. Sir Thomas Morony accompanies her down the "Avenue of Guns" at the Royal Regiment of Artillery at Napier Barracks, West Germany.

UPI