

VOLVO

Competition Service





Their names are Gunnar Andersson and Per-Inge Walfridson. Twenty-five years separate them – in age. However, they still have more in common than a lot of other people. The common factor is – Volvo! Gunnar is yesterday's star. Per Inge, known as Pi to his admirers, is today's. And tomorrow's.

They work together. When Gunnar gave up competing in his old Volvo 444 he took over the job as head of Volvo Competition Service. Now he helps Per Inge to drive in rally and rallycross with today's modern Volvo. And tomorrow's. But there isn't just Gunnar and Per Inge. There are many, many more. Today, Volvo cars compete at almost every level.

On the track – both modified and production. In the forest – specials and standards. In rallycross with and without automatic transmission. In their own series, in the national championships. During the West Swedish Rally series there was a competition in Gothenburg in the summer of 1976. 167 cars finished, of which 82 were Volvos. The remainder represented all the other different makes together. Volvo drivers won in five classes. Plus an overall victory in the competition. That says a great deal about Volvo as a competition car.



Gunnar Andersson



Per Inge Walfridson

Volvo as a competition car



We must first make one thing clear. Volvo, as a manufacturer, does not compete. We did before – in Gunnar Andersson's time. Gunnar was European Rally Champion both in 1958 and 1963. Tom Trana in 1964. Both with Volvo. But after that the factory withdrew from active participation. Then Gunnar changed jobs. He became head of the small department producing sports and competition accessories. It didn't take long to discover that, regardless of whether

or not Volvo took an active part in competitions, private motorists were still competing with Volvos. And as the demands on the cars increased, so the area of responsibility of Gunnar's Volvo Competition Service grew. We can't stop people competing in Volvos. But we can make sure that if they want to do so, they can do it with the right equipment! That is still the philosophy of Volvo Competition Service in Gothenburg. A de-

partment with a staff of 25. Working hard and intensively to produce parts and accessories in accordance with the demands of the law and the customer. Quite a responsible job. Per Inge is the representative of those who want to compete with Volvo. Volvo Competition Service and Gunnar Andersson sell their know-how and their long experience with Volvo as a competition car. Per Inge is one of their many customers.

Competing in a Volvo...

Rally

The Swedes are very skillful rally drivers. That is perhaps because so many of them were 'brought up' on narrow, winding, gravel roads. Rally is undoubtedly the most popular motor sport with a great many national classes and participants. A total of more than 20,000 Swedes actively compete in Rally sport. And they have plenty of competitions to choose from. In 1975 there were about 450 different rallies held in the country. That is to say almost ten events in different places - every weekend. In the same year, of Sweden's eight million inhabitants one million choose to spend long hours in the darkness to catch a glimpse of the various cars and drivers. Not least of those driving Volvos.



Rallycross

One branch of motor sport which has really captivated Europe in the seventies is Rallycross. Naturally Volvo is there in the shape of Per Inge and his turbo-charged 215 h.p. special.

In Rallycross the advantage lies with cars with good acceleration and with the engine over the driving wheels. This has made Per Inge and his car favorites with the crowds: he gets away after the others and has to drive right through the field to win. In 1975, Volvo drivers even got their own national series in Rallycross. In these you can compete with any car made by Volvo.

Regardless of model or make. In this series

Volvo 444's from the sixties fight for position with cars from the 121/122 Series, 140's, 1800 sports cars and brand new modern 240's. And because there are so many Volvos, and because they wear so well, it is a cheap way of driving in Rallycross. Kjell-Åke Hellqvist, from Malmö in the south of Sweden, who won the very first competition in the series, entered in a car which cost him \$1,600 to convert from a rally to a rally-

cross car. In three competitions he won more in prize money than the car originally cost him!

Rallycross is a tough sport enjoyed by the public and it also has a good spectator following.

The cars are lightened by removal of everything superfluous. The bodies are then strengthened and the drivers are protected by a rigid reinforced compartment.



...in different ways

The instrumentation is Spartan: Tachometer, Oil Temperature and Pressure Gauge. The engine is tuned to a maximum, perhaps even turbocharged. The cars have a close ratio Gear Box and a lower Rear Axle from the Volvo Duett wagon a car from the fifties. "It really is fantastic", says Kjell-Åke. "Here I am, in a 1963 Volvo with a 1951 rear axle, competing against Thomas Lindström in a 1975 Volvo 242 with a B-21 engine and a

turbo. That can really be called racing democracy!"

Track racing

Volvo drivers have their own Cup on asphalt too. It is open to cars in the 140 Series. The tuning is the same for all of them and they all use the same type of tires. The Volvo Cup is an outstanding 'nursery' for beginners. For example Ulf Granberg, who won in

1976 driving a big Camaro in the Swedish Superstars series for standard American V-8's, learned to race in a Volvo 142. After his first victory he praised the Volvo Cup: "It's a fantastic school." A number of drivers never leave the school, but others go to different forms of track racing. Many of them continue with Volvo. You can find them in the European championship for standard cars, in the new Swedish class for untuned standard cars, in the SSK series, the Swedish enthusiasts' own series. You can find them fighting for the championship on the frozen lakes of northern Sweden. However, Volvo is also very popular as a competition car in the other Scandinavian countries as well. Volvo Cup races have been held in Denmark and Finland. Volvo rally drivers compete in England, in central and eastern Europe, and the U.S.A., too.

It is not surprising that special supporters' clubs spring up here and there. In Holland, for example, there is a Volvo club which only Volvo owners can join. Similarly in West Germany and England. It has been reported that even "down under" in West Australia a Volvo owners' club exists.



Tuning a Volvo

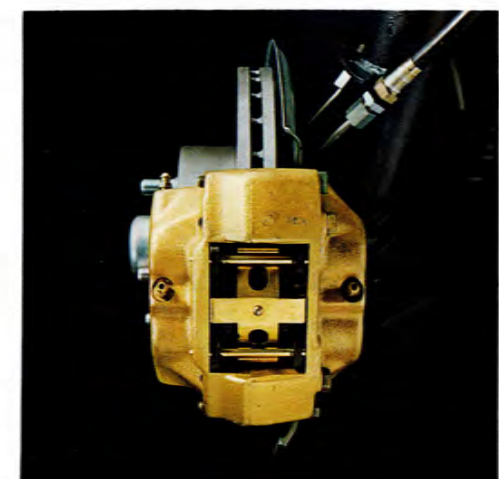
Tuning and trimming a Volvo: it's not just a question of squeezing the maximum possible horsepower out of the engine and then driving.

No! You begin first with the road-holding. With the brakes, the transmission and the interior. Then it's time to start on the engine.



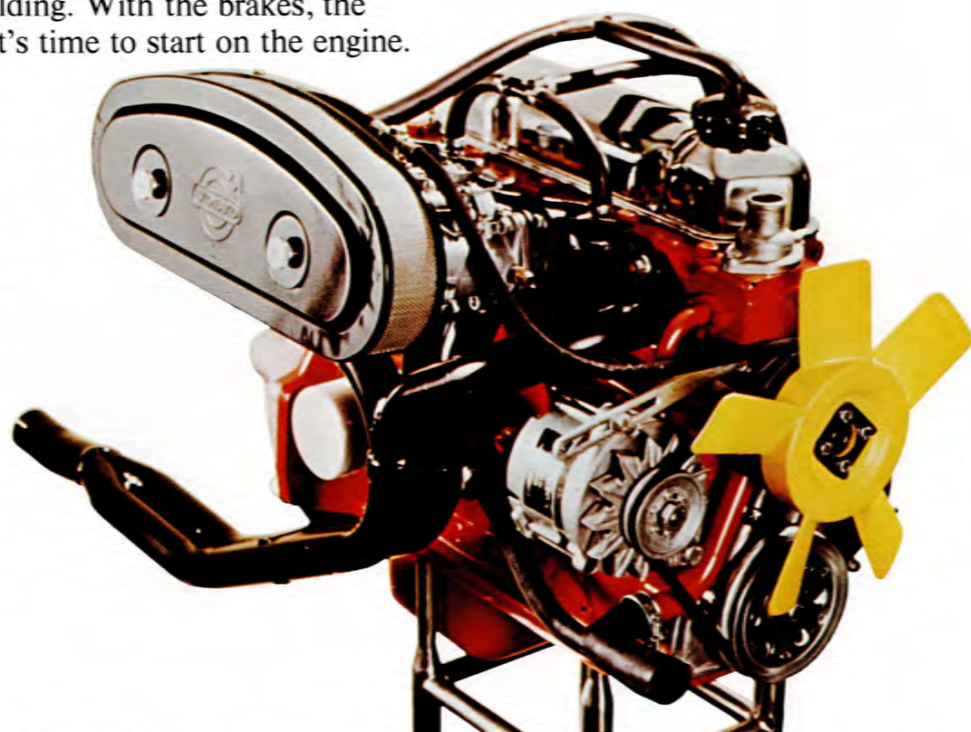
Road-holding

Everyday standards of driving comfort are not what a competition driver needs. He must have springs and shock absorbers which ensure that the wheels really do take a hard grip on the road surface. Despite the fact that the road is often in poor condition and the speed high. The wheel suspensions must be strengthened and stronger stabilizers fitted - front and rear.



The Brakes

The brakes are put under a lot of strain in a competition car. So it is partly a question of distributing the braking power correctly between the front and the rear wheels. Also the brake lining must be dimensioned to withstand the intensive stress competition entails, whether it is in the forest or on the track.



The engine

Most people enjoy working on the engine. And there is quite a lot you can do - irrespective of whether you compete in specials or standards, everything must be in full working order. This especially applies to the standard classes because in this type of competition, a difference in output one way or the other can mean a great deal. In Sweden,

the Volvo 66 and Volvo 343 are ideal for Standard B class in rally driving while the big Volvos, the 142/144 GL, are more suited to standard A, both for track racing and rally. Tuning to high levels involves not only getting more output from the engine, but also ensuring reliability. And then, only the best equipment, tried and tested, is good enough.

Highest permissible engine output in tuned standard cars

| Type Volvo | Highest permissible engine output, DIN h.p. | Special conditions |
|-------------------------------------|---|--|
| PV 444 | 76 | None |
| PV 544 | 100 | None |
| PV 544 | 110 | Disc brakes, front wheels |
| 121/122S | 100 | None |
| 121/122S | 140 | Disc brakes, front wheels |
| 121/122S with effect from 1969 | 150 | Special type ¹⁾ of brake pads and linings |
| 142, 144 | 140 | None |
| 142, 144, 145 with effect from 1969 | 180 | Special brake pads ²⁾ , shock absorbers ³⁾ and springs ⁴⁾ |
| 164 | 200 | Ventilated discs, front wheels, special brake pads ²⁾ , type VR tyres |
| 1800 | 140 | None |

¹⁾ Ferodo DS 11 front
Ferodo VG 95 rear

²⁾ Ferodo 2441

³⁾ de Carbon shock absorbers front, Volvo part no. 552189 or 552190
de Carbon shock absorbers rear, Volvo part no. 552191

⁴⁾ Front springs, part no. 552105, 552106 or 552134
Rear springs, part no. 552136 or 552128



Interior

A great deal can also be done to the interior. When the car jumps and jolts on a bad rally road or when it sways on the asphalt bends of a race-track, then it's important that you sit correctly. A special seat, a wheel which suits just you. Instruments which tell you what the engine is doing, equipment for the co-driver. These are some of the areas in which Volvo Competition Service can be of help.

And of course, a roll bar. For extra safety if the car should roll over. It's a must in virtually every sort of competition.

Transmission

Horsepower isn't everything in a competition car. It has to reach the road too. Via the driving wheels. And by 'trimming' the transmission you can gain many valuable seconds through quicker acceleration and better utilization of power. A close ratio gearbox and another rear axle ratio change the whole character of the car. It feels race-prepared, even if the engine is still in exactly standard condition.



Features

The list of possibilities is long. Raise the fuel tank at the rear, fit a protective plate under the front of the car. These are some of the things you can do in competition preparation.



Volvo 'Roadsport'

Even though you don't want to drive competitively, you can still like cars. And a lot of the things which competition drivers use can also be suitable for normal cars used for driving to and from work or for weekend trips to the country. With friends or with the family. Just think, for example, how much a front spoiler does for the appearance. It sharpens the performance of the car at high speeds and helps to cut down wind resistance, and consequently fuel consumption. The top speed is raised. If it's made in the right way of course. Volvo Competition Service makes them in the right way. Both for older and newer models. A spoiler is an original accessory, as painstakingly produced as every other Volvo original. Furthermore, have you considered the enormous amount of development work behind

one small feature? Take, for example, such a simple item as the decorative side stripes. You can't use just anything. First, it has to stay put, regardless of boiling sun or falling snow, rain or splashing mud. But it should also be possible to take it off. For you might change your mind and want a new design. Or you might want to change your car and show that you have taken good care of your old one and used the right accessories. Even down to the last minute detail. The spoiler and the stripes are two such details. Perhaps you don't think about it, but rather everything else which makes car ownership more enjoyable and the car more distinctive. Tuning kits can be fitted even if you never think of setting foot – or car – on a track. For the B-20 engine there is, for example, an approved GT kit. It contains a special inlet manifold, a Solex downdraught carburetor

with a pre-heater built into the air filter. It contains a new, sharper camshaft with more lift and improved timing; a manifold which has a double outlet; a cylinder head which is shaved and, has larger ports. This GT kit is suitable for a variety of driving – even in town traffic. Fitted to a B-20 engine it gives 125 "horses". In combination with a rally exhaust system it sounds nice – not too loud – just right. So that the neighbors and the authorities nod happily. But before starting on the engine there was something about 'feature tuning'. And here the same rules apply to both the private motorist and the competition driver – begin with road-holding, brakes, wheels, tires, interior . . . The problem of instrumentation is easily tackled with Volvo's GT instrument panel. This has a speedometer, tachometer, volt meter, gauges for temperature, oil pressure

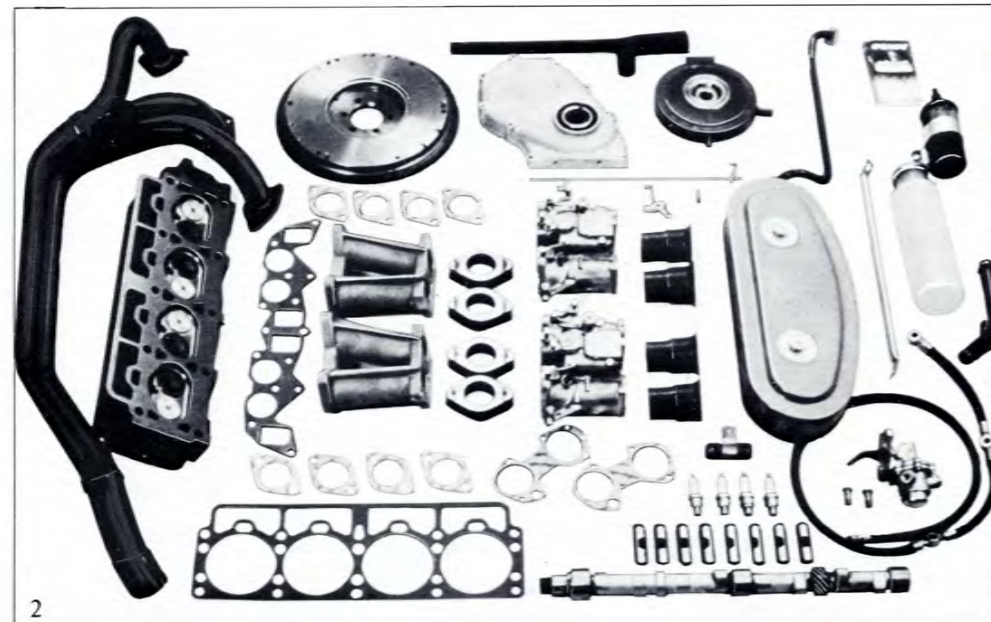
and fuel, all in a neat casing and in the right place. Directly in front of the driver. It is available for the 140 and 240 series. GT-type steering, a wider wheel in aluminium alloy – are further examples of how Volvo Competition Service can be of help. It goes without saying that all these accessories are approved by the authorities. Another example is the Recaro seat which was carefully crash-tested before being approved. A good safety guarantee in the event of an accident. The seat is delivered complete with underframe and head restraint. All this shows how important it is to think carefully and to acquire the right things before beginning to build your own Roadsport.



Volvo 142/144

1 The Volvo GT-kit increases the output of a new standard B20 engine to 125 hp DIN. Among its features are a high-lift camshaft, a new induction manifold and a specially cast exhaust manifold with twin down-pipes. The cylinder head has modified induction ports, large valves and a higher compression ratio.

2 The Volvo tuning kit gives the B20 engine even more power. Stage II yields 160 hp and consists of a special cylinder head with 44 mm inlet valves, F camshaft with lightened tappets, new induction manifold, an extractor exhaust manifold and all attachment parts. Stage III kit yields 175 hp DIN. Note: the airfilter assembly shown below is different for RHD cars.



3 The Volvo rally exhaust system gives your car the right sound and the right output.

4 Electronic, contactless CD-ignition is available for the 142 and 144.

5 The driving seat is where the driver gets down to business. So he must sit comfortably and safely!

6 Don't overheat your engine! Fit a Volvo oil cooler and keep things at the right temperature.

7 Driving fast after dark calls for the best in lighting. Volvo Competition Service has the extra lights you need. Note that this rally car also sports an air dam.



Volvo 242/244

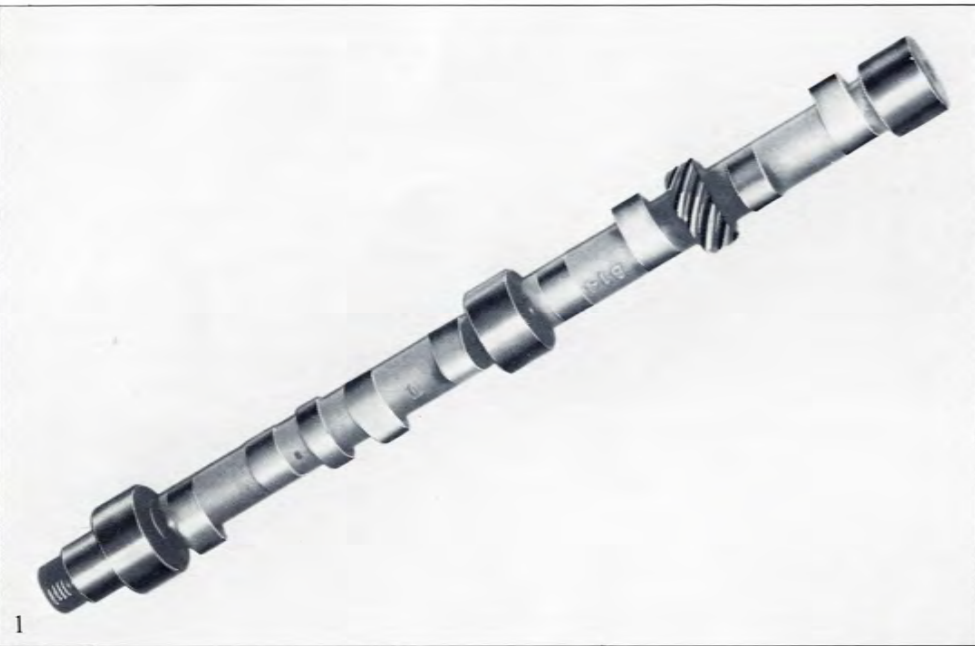


And of course, there are plenty of goodies for the Volvo 242 and 244! This is a 244 with an air dam and a rear spoiler, side stripes and extra lights.

Under the car there's a Road Holding Kit which is made up of stiffer shock absorbers front and rear and a heavy gauge stabilizer.



Other accessories



1 High performance camshafts are available in various types to suit the degree of tuning.

2 An extractor exhaust manifold.

3 Progressive-rate rally springs.

4 Close ratio gears for the transmission.

5 A reinforced clutch and disc are needed in a rally car to withstand the high engine output.

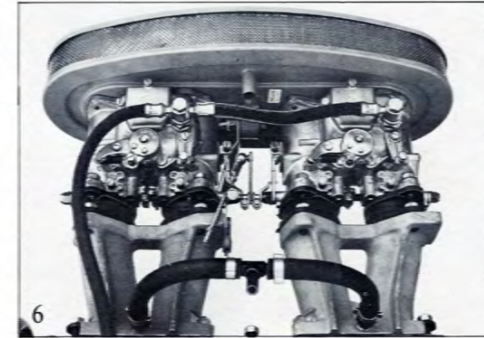
6 A carburetor kit for the B20 engine.



2



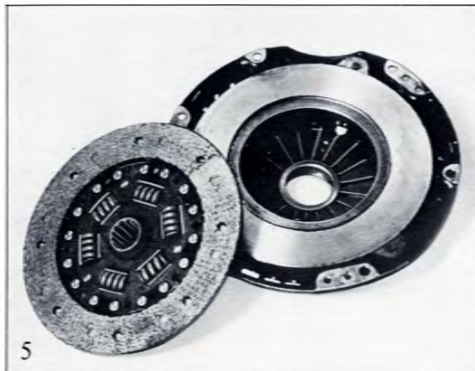
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6



3



5



1



2

1 Rally Jacket

2 Summer Jacket

3 T-Shirts

4 GT Steering Wheel

5 GT Instrument Panel

6 GT Aluminum Wheel
5 1/2 - 12 1/2 Lbs.



3



4



5



6

Walker/LeBeau's Volvo: How It's Done*

In the understandable excitement over John Buffum's near-total dominance of performance rallying this year, it's been easy to forget the supporting cast. One of the more successful of those has been the team of Jim Walker and Joe LeBeau in a Volvo 142. Walker has gone about his rally career in such a way that any aspiring rallyist could emulate him in easy and not-unbearably-expensive stages.

He built his current mount in 1972. On the car's second outing – the Press On Regardless – Walker rolled it, got it upright again, and went on to finish eighth overall in the 2000 mile car-killing event.

The following spring Walker and the Volvo won their first national event, the SCCA "Twenty Stages" Pro Rally. A few weeks later the Volvo added another page to the lore of rallying. At the FIA rally, Rideau Lakes, in Ontario, on a stage called White Mountain Road, the car came over a rise and launched itself into mid-air. For the next three seconds there was no sound save the swish of car through air. When it fell to earth over 200 feet from the launch site, Walker put his foot down and proceeded to beat the target time of the stage – something that no one had ever done. The next year they didn't bother with target times.

In 1974 the Volvo claimed three firsts in SCCA Pro Rallies. Walker ended up second overall in the drivers' standings, and would have won if he hadn't rolled the car while leading the Happiness Is Sunrise rally in New York.

In 1975 Walker's driving helped bring Volvo to within one point of the SCAA National Pro Rally Championship behind Datsun. Oh yes, he rolled the car again, this time at the Sunrider 400 in Ohio.

After four years of that kind of beating, one would suspect that the Volvo was ready to go to Valhalla (after all, it is Swedish). Not so. A new rally sanctioning body, called the North American Rally Association, was formed in 1976 and Walker and the Volvo took a first and a second in the first two NARA events.

LeBeau, a veterinarian toxicologist, is Walker's co-driver. You would think that

someone with all that education might have more sense than to ride through the woods with a hot-shoe in a rally Volvo.

"All a co-driver or navigator needs is the ability to follow directions, read in a car without getting sick, and trust in his driver. Of course, it helps if you are a bit crazy." Of course, Walker wasn't always a world beater. Like everyone else, he's paid his dues – but he did it in a sensible fashion.

To begin with, Walker's choice of a car – the Volvo – was not left entirely to chance. He was . . . he is . . . let's see, how does one phrase this delicately? What the hell, Jim Walker sells Volvos for a living. There you have it, right up front. He hustles Volvos to keep the wolf away from the door. Before that he sold insurance and before that, encyclopedias. He has always had an active interest in cars, and while he was a student at the University of Michigan in Ann Arbor an opening came up at the local Volvo dealer. Jim jumped at the chance to merge his hobby and his vocation. At the same time he met Hal Easton who told him about a new kind of rallying going on in Michigan. It was clandestine, it was nocturnal, and it was fun.

Jim had been running time, speed and distance rallies with his father since 1961, but nothing in that had prepared him for the experience of riding all night down dirt roads running flat out. After a few events he convinced Hal that he ought to navigate while Jim drove. The first time he tried it, Jim knew he had found his sport.

They were running in a Volvo 122 without any particular success, mostly because the car was not properly prepared. They then bought a '68 122 and set it up to be a real rally car. The new car was an ohmygod improvement, meaning they began running better. They were third at the 1971 Press On Regardless. The 122 was a fine car, but it needed more power. Before Jim could do anything about it, fate stepped in. While trying to decide what to do next, he was selected one of the top Volvo salesmen in the world. The prize? A trip to the Volvo works in Sweden.

It was there that Jim met and spent hours

with Gunnar Andersson, the director of Volvo Competition Service. Andersson was the man behind the three World Rally Championships that Volvo has won. He has been both a driver (twice European champion) and a builder. Jim was overwhelmed by the hospitality of Andersson and his people and by their willingness to help. Now he couldn't wait to build a car.

In June of 1972 he took delivery of a new 142 and went to work. From his own experience and the advice he had received from Volvo Competition, he prepared dozens and dozens of pages of carefully detailed notes of exactly what he wanted to do to the car. The notes were very thorough ("Lighten the ashtray. Blueprint the engine."). He kept records of everything. Every pound of weight that was removed or added was recorded; every part number was recorded; the amount of weight on each wheel was recorded; everything was recorded.

The car was prepared by the book. The book in this case was entitled "Volvo Parts and Equipment Catalog" and is published by the U.S. arm of Volvo Competition Service which is part of Volvo Western in Torrance, California. Wayne Baldwin runs the show at Comp Service, and his book contains everything a Volvo freak could want – from jacket patches to blueprinted engines. Any Volvo dealer can order the stuff, and anyone can call Baldwin for advice, specs or prices. Before the department was established, Walker was forced to get his parts directly from Sweden. Not very convenient, and the air freight was expensive.

Walker went the whole route in setting up the car. First, it was completely gutted. Everything that could be removed was removed, including the undercoating – a job that took five days and 80 gallons of solvent. (Says Jim, "May be the ultimate in messy jobs, especially in July.") Next came the installation of the Volvo Safari kit. Sounds simple enough until you find that the Safari kit consists of re-enforced body and frame parts which must be welded in place. What with the things that have happened to the car, it would seem that the Safari kit was worth the work.



Heavy duty, boxed suspension members were added at all corners along with rally-grade springs and Bilstein rally shocks. Front and rear aluminum skid plates were added along with fiberglass and plastic fenders, hood and trunk deck. All of the glass except the windshield was replaced with plexiglas and a fuel cell was installed.

Notice that several hundred hours (and dollars) had gone into the car, yet there was still no mention of the drivetrain. The engine, transmission and rear end were more of the same meticulous work.

The engine is the Volvo Stage IV package rated at over 190 horsepower. The transmission was a Volvo 164 4-speed with electric overdrive modified to operate in the top three gears – a neat trick, and very handy in rallying. Power went through a high-ratio limited slip differential, also Volvo. The whole package was finished off with the usual rally instruments, winches, a rollcage, navigational equipment and four big Cibie Super Oscar driving lights.

The car sits nearly a foot-and-a-half off the ground on skinny little (5.90 x 15) Cooper mud and snow tires. Walker eschews fancy rally tires with exotic designs and instead uses the very unexotic 4-ply nylon bias Cooper Sportsmaster. The narrow tires cut through the loose surface usually found on rally roads to grab at the hard bed underneath. Walker also likes the predictability of the tires – very important since he runs nearly all of the rally mostly sidewise to the road.

When he gets out of the car and removes his helmet, Jim Walker looks like anything but a national class rally driver. He has a handsome, almost boyish face that makes

him look much younger than his 31 years. His voice has a rasp to it that gives one to think that he might gargle with Ajax. When he does talk, though, he knows whereof he speaks.

"There is no question that a completely stock Volvo is way ahead of nearly any other make as a starting point for a rally car. A person can spend less than \$1000 setting up a Volvo and have a car that is completely reliable, safe and capable of finishing in the top 20 in a national event."

That \$1000 would buy heavy duty suspension pieces, a roll cage, safety equipment, navigational instruments, lights and tires. "Once those things are in place, you have a car that can finish any rally in the U.S. It won't be all that fast, but it will be fast enough for the novice to scare himself all shaky-kneed. It will also be driveable on the street and no one will ever notice. A guy with a setup like that will soon know if he wants to stay in rallying or not. If he wants to stay in, there is a lot more he can do." The next step up takes another thousand bucks and probably 200 hours of labor.

"Now is the time to install the Safari kit and complete the suspension work not done earlier. Add a limited slip diff and put in heavy duty drive-shaft supports. All of the fuel and brake lines should be moved inside the car. The battery should be moved to the trunk. All the undercoating and soundproofing should be removed. The shell should be bare metal. Mill, port and polish the head, re-jet the carbs, add solid state ignition and have the engine balanced. The car will now have 130-140 horsepower and will get a good driver in the top ten if he stays between the trees."

The next step up is the car Walker has now. With a very good driver it is capable of winning major events. It is also an investment of major proportions. Walker has over ten grand out-of-pocket in his car, and he did all of the labor himself. Shop labor would have easily doubled the cost.

Jim isn't the only member of the family who has gone off the deep end about rallying. His wife, Ginny Reese, is a librarian at the University of Michigan. On weekends she removes her mild mannered disguise and becomes a first-rate co-driver. She runs with Tom Tolles in another Volvo 142 – naturally. Tom drew on Jim's experience to set up his car and must have done something right. Last spring in the car's first rally, a NARA American Cup event, Tom and Ginny took third place money. There may be something to all of this Volvo talk.

Jim Walker's future? A new 242 would be nice. He has no doubt that a properly prepared 242, with its 2.1 litre overhead cam fuel injected engine, would be the class of the field. But rallying, like racing, takes hot and cold running money. So for now, he will just keep running his "old" car and keep winning rallies and hope that someone will notice.

He'll also keep selling Volvos. Can you imagine the look on his face when a customer comes in and asks, "Are Volvos really as tough as the ads say?"

He smiles that Jimmy Carter smile of his and says, "Let me tell you about the time up in Canada. . ."

*Quoted from *Autoweek*, November 13, 1976.

Volvo does not compete. But since so many Volvo owners want to compete in Volvos, it is Volvo's duty to see that good and approved accessories are available.

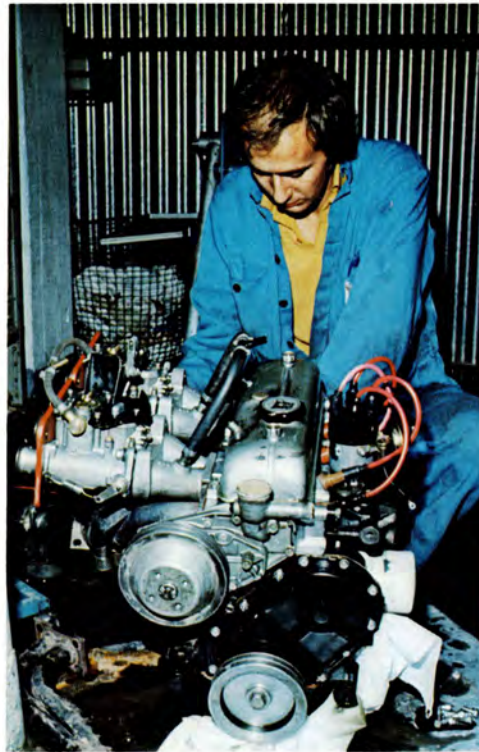
That is, in very simple terms, the background to why Volvo Competition Service – commonly known as the competition department – exists. Volvo Competition Service is a small department with only 25 employees.

Their tasks are varied. They build and service. They tune engines and develop features for use in competitions.

Not only on cars but also on boats. For a large part of Volvo Competition Service's activity is concerned with preparing boat engines for competition. Their features and equipment are sold via Volvo's retail organizations throughout the world. In Europe,

in the U.S.A., in Africa and in Australia – in most places where they compete with cars, they compete with Volvos. And with equipment from Volvo Competition Service in Gothenburg.

The factory reserves the right to make changes at any time, without notice, to prices, colors, materials, equipment, specifications and models and also to discontinue models.



VOLVO
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