Svenska Volvo PV-klubben home page

Six ruby red 1958 PV Sports - the unknown cars

English translation of the story "Bilarna som inte finns" in the PV-Entusisten # 3 1998.

By Bengt Andersson

In 1959 Volvo assembled six rubinröda (=ruby red) PV 544 A Sport and those are the only known 544A of that colour. Two of them were sold to competition drivers, one to Hans "Huschen" Hansson in Ludvika in Sweden, the other to Basse Hveem in Norway.
Volvo used another one of these red 544A (chassis number 241905) for competition. It was delivered to their driver Gunnar Andersson on 19 September 1959. Number 241902 was delivered to Lilleström in Norway on 13 August and the third PV (no 241903) was delivered to Norlings Motor in Ludvika on 18 August. That car was re-sold to Hans "Huschen" Hansson who were a frequent racer at that time, although he had mainly participated only in national competitions. But now he decided to try his luck also at larger events with W59077, as the registration plate read. He made his debut in the Monte Carlo Rally in January 1960. Before entering the race, he had spent some 250 hours of fine-tuning in his garage to ensure that the car would perform at its peak. As the race-cars eventually arrived in Monte Carlo, prior to the final stage, "Huschen" held the 13th position. Regretfully he didn't perform well all the way and ended up as number 34 in the race.

Monte Carlo revisited...

A second try was made in the 1961 Monte Carlo Rally, and the experiences from the previous year came in handy. Evidently it paid off and "Huschen" and his co-driver

Bjarne Lundberg ended up at second place in their class.

...and the helmet was shelved

In spite of his success, which included a Swedish Championship title on ice, "Huschen" decided to sell the car after the 1961 Monte Carlo Rally. He joined the Czeckoslovakian Skoda factory stable but quit competing after some 200 races. He made a short come-back in the 1964 Midnattsolsrallyt where he piloted another PV 544, but after that he declared himself "cured" from the racing disease. Notwithstanding, this cure did not prevent him from tracking down his old racing car in the summer of 1994. And today it has been restored to its original racing condition from the days of glory.

The PV of Basse Hveem

The red 1958 PV 544 Sport originally delivered to Lilleström in Norway is also still around. This car has the serial number 241902 which means that it preceeds the car of "Huschen" (which currently is in Ludvika). Considering the history of these rare cars, it is hard to believe that two of them still are around. This car was originally ordered from Volvo by the famous Norwegian speedway motorcycle-racer Basse Hveem. He was both Norwegian and Nordic champion in both speedway and ice-racing several times. He bought this car when he quit bike-riding, in order to compete with cars for a change. He participated in the Monte Carlo Rally, as well as in numerous rough stage gravel-road races with the PV. He is currently restoring the car and although nobody knows when it will be ready, it is good to know that this unique car will be saved. As soon as the project has finished, the car will be a part of an exhibition celebrating Basse Hveem, along with some of the JAP motorcycles he raced so successfully.

Original story by Bengt Andersson,

Translation by John Boija

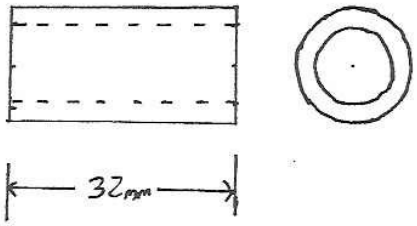
Page updated October 7 1999.

Noble Masts
Manufactured by R. Mason & Son
'A' Shed, Harbour Way, Bristol, BS1 5UH, UK
Telephone (0117) 929 7450 Fax (0117) 925 6033
UK Patent No. 2112706

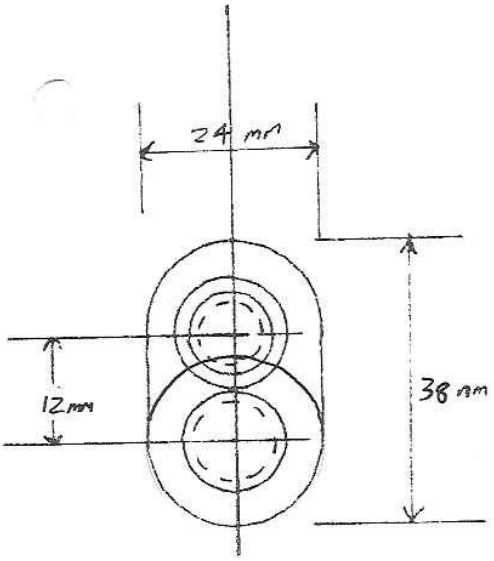
spars, blocks & joinery

Bushes 12 off. Slipe fit on 12mm pin.

OD 16 mm
ID 12 mm
Ie wall 2mm.



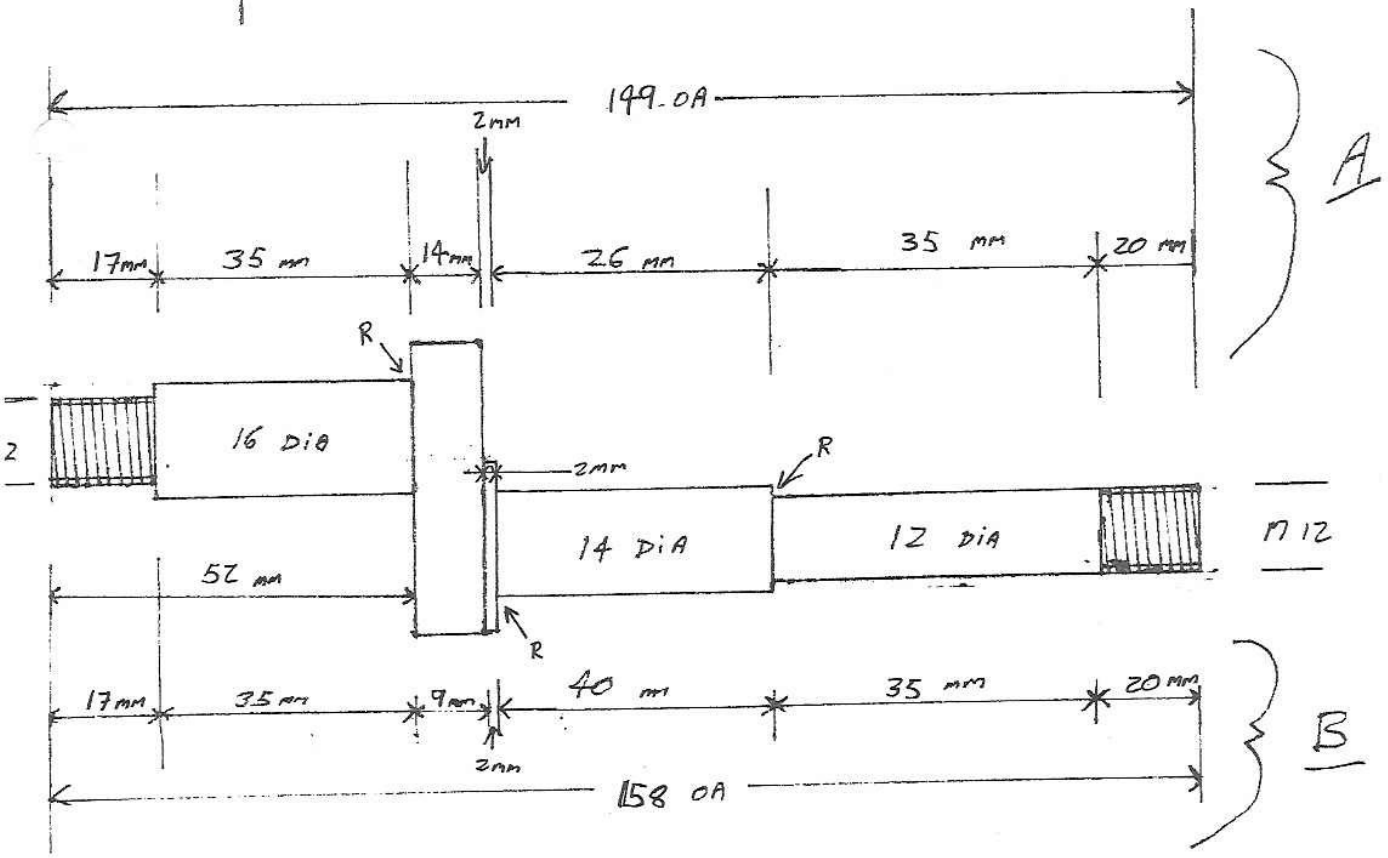
Washers M12 x 30mm x 3mm 36 off
* M16 x 30 mm x 3mm 12 off
* to match RAD on pin.



6 no off set A
6 no off set B

EN 24T

RADs as nessery.



FROM : KEITH WILSON
15 THE CHESTERTONS
BATHAMPTON
BATH
SOMERSET
BA2 6UH
5/2/01
TO : MSA – HISTORIC VEHICLE REGISTRATION DEPARTMENT

DEAR SI/MADAM

I ENCLOSE THE FIA PAPERS FOR 1958 VOLVO PV 544 B16 ENGINE THAT WAS IMPORTED FROM SWEDEN IN NOVEMEBER 1999.

I HAVE ALTERED THE OWNERSHIP FORM AND AMENDED THE FORM TO STATE THAT THE CAR NOW HAS FRONT DISC BRAKES AS FITTED TO PV 544 MODELS AND AN ALTERNATOR. AT PRESENT THE CAR IS FITTED WITH THE STANDARD MECHANICAL FUEL PUMP BUT MAY AT A LETER DATE BY EQUIPPED WITH A ELECTRIC TYPE – SO I HAVE LEFT THE FORM THE SAME.

THE UK REGISTRATION NUMBER IS NOW MSL 330. THE COLOUR IS STILL THE SAME.

I WOULD BE GRATEFUL IF YOU COULD REGISTER THE FORM INCORPORATING THE PHOTOGRAPHS ENCLOSED.

MANY THANKS

K W WILSON

CVA 88

ISSUING ASN SBF

FORM N° 397

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

HISTORIC VEHICLE IDENTITY FORM

IN ACCORDANCE WITH APPENDIX "K" TO THE INTERNATIONAL SPORTING CODE, FOR HISTORICAL CARS COMPETING IN SPEED EVENTS, THIS FORM MUST BE SUBMITTED TO THE APPROPRIATE ASN FOR VERIFICATION AND STAMPING. IT REMAINS THE PROPERTY OF THE ASN AND MUST BE RETURNED TO IT IF REPLACED BY A NEW FORM. THIS DOCUMENT MUST BE COMPLETED IN CONFORMITY WITH OF THE DEFINITIONS AND REQUIREMENTS OF APPENDIX "K".

CAUTION : THIS FORM IS INTENDED SOLELY FOR COMPETITION USE, IS NO GUARANTEE OF THE CAR'S AUTHENTICITY AND IS NOT TO BE USED FOR COMMERCIAL PURPOSES OR AS PROOF OF THE CAR'S HISTORY.

MAKE **VOLVO**
MODEL **PV**
TYPE **54406 A**
REGISTRATION N° **EEB 516**
CHASSIS N° **198444**
ENGINE N° **22483**
ENGINE TYPE **Volvo B16**
ENGINE CAPACITY **1580cc**
YEAR OF MANUFACTURE **1958**
YEAR OF RESTORATION **1998**
FIA HOMOLOGATION FORM N° (If applicable)

Photograph of car in present form ; edge must be overstamped by ASN.

This section to be completed by the ASN.

WE THE **SBF/RHK** HAVE INSPECTED THE DETAILS ON THESE PAGES AND TO THE BEST OF OUR KNOWLEDGE CONSIDER THE CAR TO BE CORRECTLY DESCRIBED AND CATEGORISE IT AS BELOW :

PERIOD (A, B, C, D, E, F, G, H, I) **E**
TYPE **TC 8**

- SINGLE-SEATER RACING CAR
- TWO-SEATER RACING CAR
- GRAND TOURING PROTOTYPE (A, B, C, D)
- COMPETITION GRAND TOURING CAR
- STANDARD GRAND TOURING CAR
- COMPETITION TOURING CAR
- SERIES PRODUCTION TOURING CAR

SIGNED [signature] DATE 98.07.31.
STATUS OF SIGNATORY **L-G Widenborg**
Tech inspector

EACH PAGE OF THIS FORM MUST BEAR THE STAMP OF THE ISSUING ASN.

NOTE : Should a car entered for an event be found not to conform to its Identity Form the organiser will return it, stating the reason, to the ASN.

1.1 CHASSIS FRAME

(a) HOW IS CHASSIS IDENTIFIED & WHERE **Numberplate on right side fire wall**

(b) CONSTRUCTION & MATERIAL (Channel, Tubular, Monocoque, etc.) **Monocoque**

(c) IS CHASSIS TO ORIGINAL SPECIFICATION YES/NO

(d) IF NO STATE CHANGES

(e) IF NEW CHASSIS CONSTRUCTED STATE WHEN, WHY AND BY WHOM

(f) IS NEW CHASSIS TO ORIGINAL SPECIFICATIONS AND DIMENSIONS YES/NO

(g) IF NO STATE DEVIATIONS FROM ORIGINAL

(h) NOTE OTHER IDENTIFYING NUMBERS ON CHASSIS FRAME

1.2 FRONT SUSPENSION

(a) SUSPENSION TYPE (beam axle, w/bone, De Dion, etc.) **W/Bone**

(b) SPRING MEDIUM (coil, leaf, etc.) **Coil**

(c) DAMPERS (friction, lever, telescopic, etc.) **Telescopic**

(d) IS SUSPENSION TO ORIGINAL SPEC. & DIMENSIONS YES/NO

(e) IF NO IS SUSPENSION TO A CATALOGUED OPTION YES/NO

(f) IF NO STATE CHANGES

(g) IS SUSPENSION ADJUSTABLE YES/NO

(h) IF YES STATE METHOD (Rose joints, alternative mountings, etc.)

(i) IS ANTI-ROLL BAR FITTED YES/NO

(j) IS ANTI-ROLL BAR ADJUSTABLE YES/NO

1.3 REAR SUSPENSION

(a) SUSPENSION TYPE **Live axle**

(b) SPRING MEDIUM **Coil**

(c) DAMPERS **Telescopic**

(d) IS SUSPENSION TO ORIGINAL SPEC. & DIMENSIONS YES/NO

(e) IF NO IS SUSPENSION TO A CATALOGUED OPTION YES/NO

(f) IF NO STATE CHANGES

(g) IS SUSPENSION ADJUSTABLE YES/NO

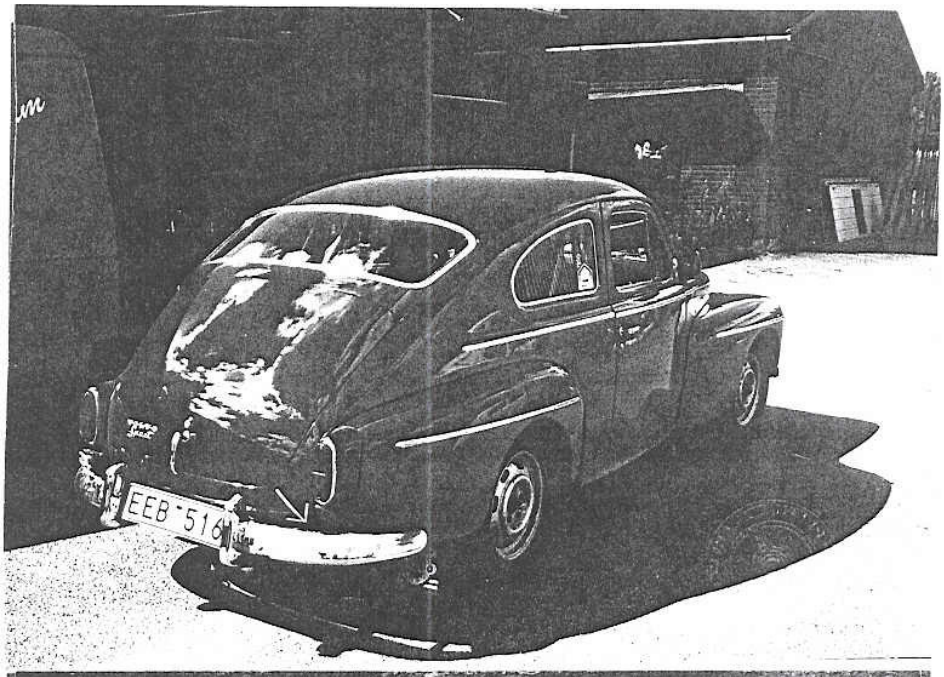
(h) IF YES STATE METHOD

(i) IS ANTI-ROLL BAR FITTED YES/NO

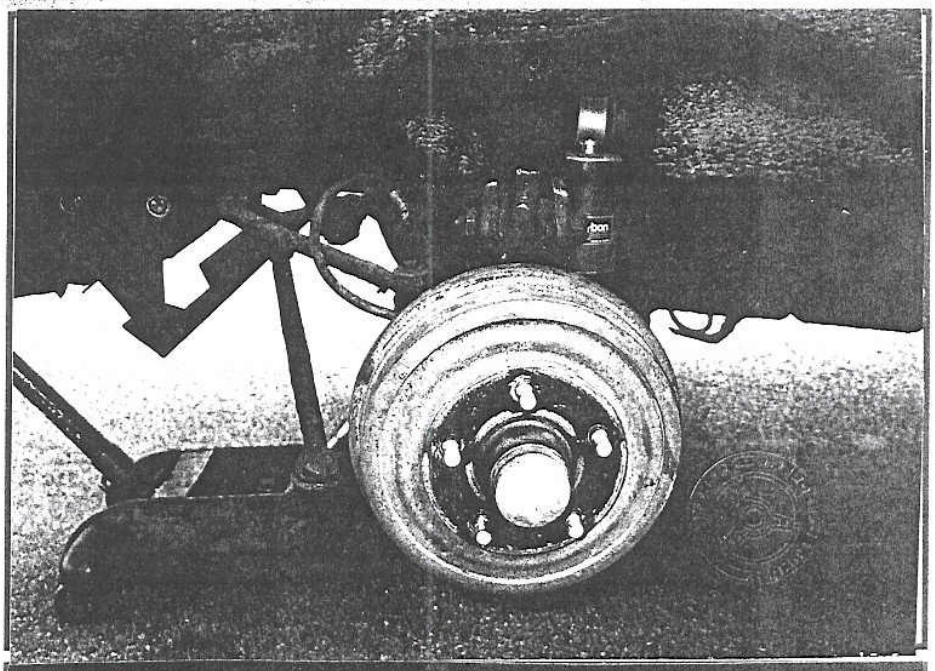
(j) IS ANTI-ROLL BAR ADJUSTABLE YES/NO

THIS PAGE IS FOR PHOTOGRAPHS OF CAR & SUSPENSION, 9 cm x 13 cm

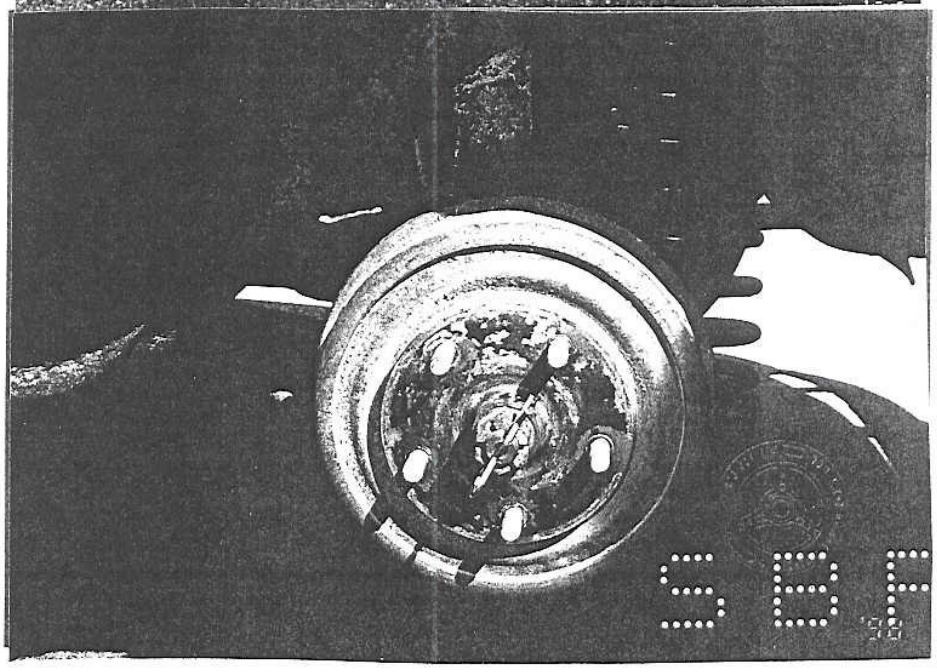
3/4 REAR



FRONT SUSPENSION



REAR SUSPENSION



FORM N° 397

SECTION 2 ENGINE

2.1 ENGINE

(a) MAKE VOLVO ENGINE N° 22483

(b) DATE OF MANUFACTURE 1958 XXXXXXXXX FOUR STROKE

(c) N° CYLS 4 CONFIGURATION (straight, vee, etc.) Straight

(d) BORE : original 79.37 STROKE : original 80.00
actual actual

(e) CAPACITY : original 1580cc actual 1580cc

(f) IS CYLINDER BLOCK CAST FROM ORIGINAL PATTERN AND MATERIAL YES/XXX

(g) IF NO STATE CHANGES AND WHY

(h) IS CYLINDER HEAD CAST FROM ORIGINAL PATTERN AND MATERIAL YES/XXX

(i) IF NO STATE CHANGES AND WHY

(j) NUMBER OF PORTS 4 + 4 NUMBER OF PLUGS 4 NUMBER OF VALVES PER CYLINDER 2

(k) ARE VALVE SIZES :

(i) TO STANDARD SIZE YES/XXX

(ii) TO FACTORY OPTION SIZE (NOT FOR GT, GTS, TOURING CARS) YES/NO

(iii) TO HOMOLOGATED SIZE YES/NO

(l) IF NO QUOTE SIZES : inlet dia exhaust dia

(m) IS ENGINE IN STANDARD POSITION YES/XXX

(n) IF NO STATE MODIFICATIONS

(o) IS ENGINE TO ORIGINAL SPECIFICATION FOR CHASSIS N° YES/XXX

(p) IF NO STATE CHANGES

2.2 IGNITION

(a) TYPE (magneto, coil, etc.) Coil

(b) IS SYSTEM TO STANDARD SPECIFICATION YES/XXX

(c) IF NO STATE CHANGES

(d) IF ELECTRONIC, STATE SYSTEM

2.3 FUEL FEED

(a) CARBURETTOR : MAKE S.U. TYPE H4 N° 2

(b) FUEL INJECTION : MAKE TYPE

(c) ARE MAKE, TYPE & NUMBER TO STANDARD SPECIFICATION YES/XXX

(d) IF NO ARE CHANGES TO MANUFACTURER'S OPTION YES/NO

(e) IF NO STATE CHANGES AND WHY

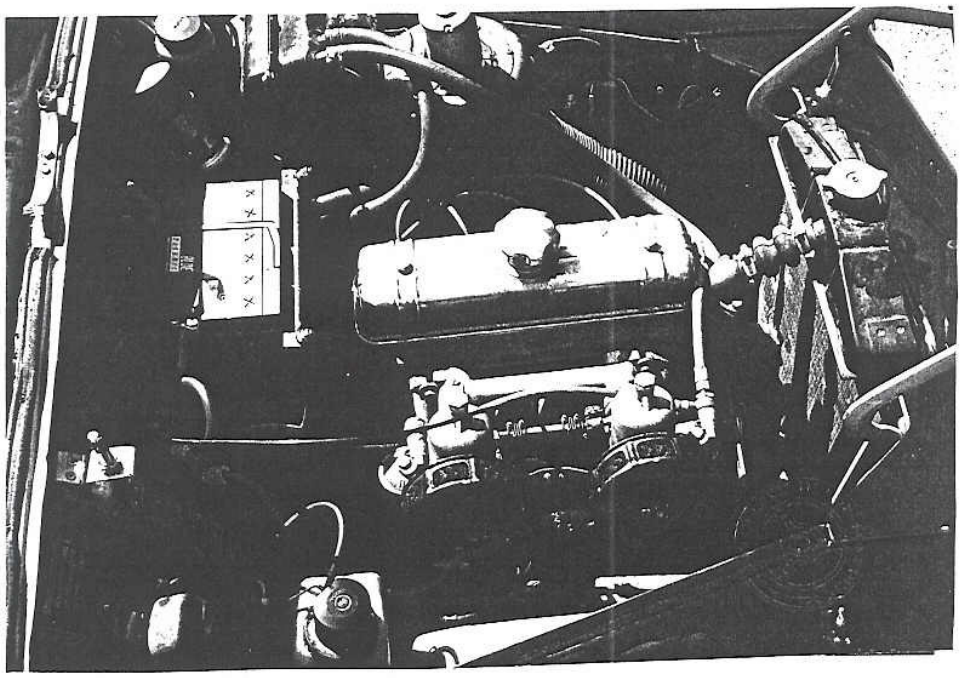
(f) IF SUPERCHARGED : MAKE TYPE

(g) IS SUPERCHARGER TO STANDARD SPECIFICATION YES/NO

(h) IF NO IS SUPERCHARGER A MANUFACTURER'S OPTION YES/NO

(i) IF NO STATE CHANGES

THIS SPACE IS FOR A PHOTOGRAPH OF THE ENGINE, 9 cm x 13 cm WITH INLET MANIFOLD TO FOREGROUND



2.4 LUBRIFICATION

(a) TYPE OF SYSTEM (Wet sump, Dry sump) **Wet sump**

(b) IS SYSTEM TO STANDARD SPECIFICATION YES/~~NO~~

(c) IF NO IS SYSTEM A MANUFACTURER'S OPTION YES/NO

(d) IF NO STATE CHANGES

(e) IS OIL COOLER FITTED No ~~YES~~/~~NO~~

(f) IF YES IS IT TO STANDARD SPECIFICATION ~~YES~~/~~NO~~

(g) IF NO STATE CHANGES **According to App. K 12.6** YES/NO

2.5 FUEL SYSTEM

(a) TYPE (Gravity, Mechanical, etc.) **Electric pump**

(b) IS FUEL SYSTEM TO ORIGINAL SPECIFICATION ~~YES~~/NO

(c) IF NO STATE CHANGES **According to App. K 12.8**

(d) IS FUEL TANK TO ORIGINAL SPECIFICATION & LOCATION YES/~~NO~~

(e) IF NO STATE CHANGES

SECTION 3 TRANSMISSION

3.1 GEARBOX

(a) MAKE VOLVO TYPE

(b) N° SPEEDS 4 YEAR OF MANUFACTURE 1958

(c) IS GEAR BOX STANDARD TO THIS CAR YES/~~NO~~

(d) IF NO STATE CHANGES

3.2 FINAL DRIVE

(a) WHEELS DRIVEN (Rear, Front, all four) Rear

(b) METHOD (Shaft, Chain) Shaft

(c) IS A STANDARD RATIO IN USE YES/~~NO~~

(d) LIST RATIO IN USE 4.56

(e) LIST ALTERNATIVE RATIOS AVAILABLE AS CATALOGUED OPTION 5:43 5:13 4.56 4:10

(f) IS A TORQUE BIASSING DIFFERENTIAL FITTED ~~YES~~/NO

(g) IF YES, WHAT SYSTEM, MAKE AND MODEL

SECTION 4 BRAKES & STEERING

4.1 BRAKES

(a) MAKE/TYPE : FRONT Drum REAR Drum OTHER

(b) METHOD OF OPERATION Hydraulic

(c) DRUM DIAMETER & SHOE WIDTH : FRONT REAR

(d) DISC DIAMETER & WIDTH : FRONT REAR

DISC TYPE, SOLID OR VENTILATED

(e) CALIPER TYPE (Ali, 2 Pot, etc.) : FRONT REAR

(f) IS BRAKING SYSTEM TO ORIGINAL SPECIFICATION ~~YES~~/NO

(g) IF NO STATE CHANGES FRONT DISC BRAKES AS44 TYPE AMAZON

4.2 STEERING

(a) TYPE (Rack & Pinion, Worm & Peg) Cam/roller

(b) IS STEERING TO ORIGINAL SPECIFICATION YES/~~NO~~

(c) IF NO STATE CHANGES

FORM N° 397

SECTION 5 WHEELS & TYRES

5.1 WHEELS

(a) TYPE (Wire, Pressed steel, etc.) : FRONT Pressed steel REAR pressed steel

(b) DIAMETER FRONT 15" REAR 15"

(c) RIM WIDTH FRONT 4" REAR 4"

(d) ARE WHEELS TO ORIGINAL SPECIFICATION YES/NO

(e) IF NO STATE CHANGES

5.2 TYRES

(a) NOMINAL SIZE FITTED : FRONT 165 x 15 REAR 165 x 15

(b) ARE TYRES TO ORIGINAL SIZE YES/NO

(c) IF NO STATE ORIGINAL SIZES : FRONT REAR

SECTION 6 MISCELLANEOUS

6.1 BODY

(a) TYPE (Single seater, coupe, etc.) Sedan MATERIAL Steel

(b) NUMBER OF SEATS 5 NUMBER OF DOORS 2

(c) MATERIAL : IS ALL BODY MATERIAL TO ORIGINAL SPECIFICATION YES/NO

(d) IF NO STATE CHANGES

(e) IS BODY ORIGINAL TO THAT CHASSIS YES/NO

(f) IF NO IS BODY TO ORIGINAL SPECIFICATION YES/NO

(g) IF NO STATE CHANGES

6.2 AERODYNAMIC AIDS (CARS BUILT AFTER 1966 ONLY)

(a) FRONT : HEIGHT FROM GROUND OVERALL WIDTH

WIDTH, LEADING TO TRAILING EDGE

(b) REAR : HEIGHT FROM GROUND OVERALL WIDTH

WIDTH, LEADING TO TRAILING EDGE

DISTANCE CENTRE LINE REAR WHEEL TO REAR OF WING

(c) ARE WINGS TO ORIGINAL SPECIFICATION YES/NO

(d) IF NO STATE CHANGES

6.3 LIGHTING

(a) IS LIGHTING SYSTEM TO STANDARD SPECIFICATION YES/NO

(b) IF NO STATE CHANGES

(c) IF GENERATOR FITTED IS IT : DYNAMO YES/NO

ALTERNATOR YES/NO

SECTION 7 DIMENSIONS

(a) WHEELBASE 2600mm

(b) TRACK (Measured between centres of tyre treads)

ORIGINAL : FRONT 1295 mm REAR 1315mm

CURRENT : FRONT REAR

(c) WEIGHT : ORIGINAL CATALOGUED OR HOMOLOGATED MINIMUM WEIGHT 975 Kg

SECTION 8 HISTORY

8.1 PREVIOUS OWNERS - Where known list car's previous owners :

Erik Sand

8.2 DOCUMENTARY REFERENCES (IF CAR WAS NOT HOMOLOGATED) - List technical and descriptive references to the car in contemporary books or periodicals.

KAK homologation 1958-11-11

8.3 COMPETITION HISTORY - As "contemporary" car.

1000 Lakes Rally 1990
GLOBEN rally 1991

SECTION 9 APPLICANT'S DECLARATION

I CERTIFY THAT THE ANSWERS GIVEN ARE CORRECT AND I UNDERTAKE TO NOTIFY THE AUTHORISING CLUB SHOULD ANY CHANGES BE MADE. I ALSO CERTIFY THAT ANY ENTRY FORM FOR INTERNATIONAL COMPETITION PURPOSES WILL BE FILLED IN ACCORDING TO THE INFORMATION ON THE PRESENT FORM.

APPLICANT Hans Sellberg ADDRESS : Havrevägen 14

LICENCE NUMBER IF APPLICABLE 370828-1053 S-713 34 NORA Sweden

APPLICANTS SIGNATURE : Hans Sellberg DATE 1998-07-26

SECTION 10 CHANGE OF OWNERS LIST

THIS PAGE TO BE FILLED IN BY THE ASN TO INCLUDE THE OWNER AT THE TIME OF INITIAL APPLICATION AND EACH NEW OWNER WHENEVER THE CAR'S OWNERSHIP CHANGES.

NAME	ADDRESS	DATE OF ACQUISITION
Hans Sellberg	Havrevägen 14 S-713 43 NORA Sweden	
KEITH WILSON	15 THE CHESTERTONS BATHAMPTON BATH SOMERSET BA2 6UH	NOVEMBER 1999

FICHE D'HOMOLOGATION

Volvo 54406 A

Désignation du modèle de voiture: P 54406 A ⇒ PV 544 - 11234 [illegible] changed number.

KUNGL AUTOMOBIL KLUBBEN
Tävlingssekreteriatet

Constructeur: AB Volvo, Göteborg, Suède

N° matricule (exemple): 196010

Description de la carrosserie: Carrosserie autoporteuse entièrement en acier. 2 portes. Sièges avant séparés à dossiers basculant.

Description de la mécanique: Suspension: Ressorts hélicoïdaux à l'avant et à l'arrière.
Train avant: A roues indépendantes par triangles articulés inégaux.
Arrière: Pont rigide avec bras de réaction et de poussée.
Amortisseurs avant et arrière hydrauliques télescopiques.
Bloc-moteur en fonte, carter d'embrayage et couvercle de boîte de vitesse en aluminium.

Poids de la voiture en ordre de marche: 975 kilos (avec carburant, huile, eau, roue de secours, mais sans outillage ou bagage).

Roues: Dimensions de jantes: 15" x 4" J
Dimensions des pneumatiques: 5,90" x 15"
165 x 15"

Empattement: 2.600 mm

Voie: Avant: 1.295 mm Arrière: 1.315 mm

Moteur: Nombre de cylindres: 4
Alésage: 79,37 mm
Course: 80 mm
Cylindrée totale: 1,58 litres

Carburateurs: Type: SU H4 Nombre: 2

Système d'allumage: Distributeur d'allumage Bosch

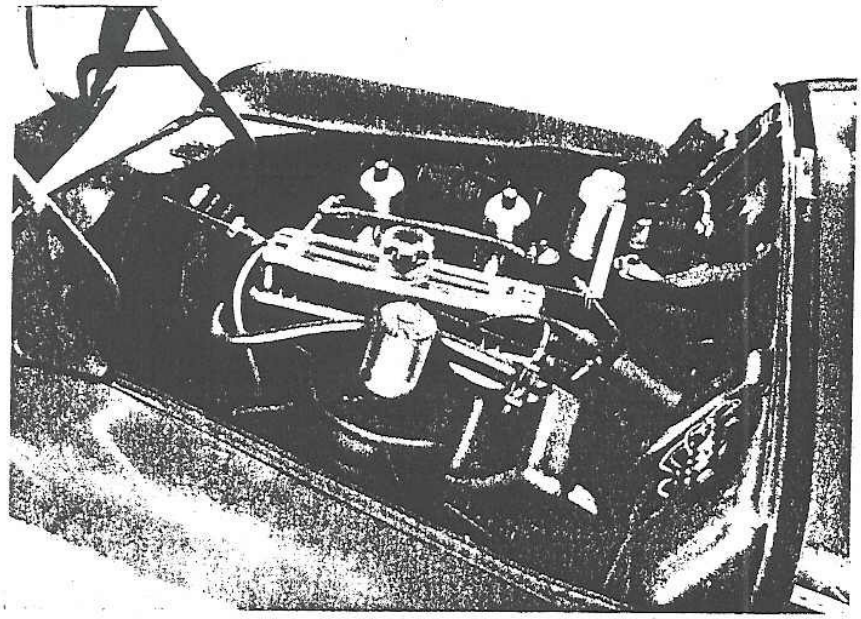
Rapports de la boîte de vitesse: en 1ère vitesse: 3,45
en 2nde vitesse: 2,18
en 3ème vitesse: 1,31
en 4ème vitesse: 1,00

Rapport du pont arrière: 5,43:1 5,13:1
4,56:1 4,10:1

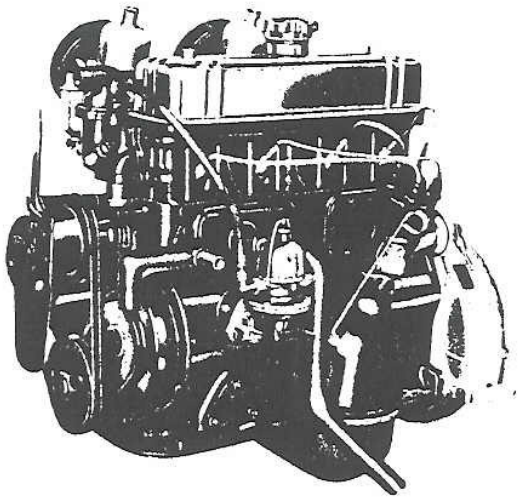
KUNGL AUTOMOBIL KLUBBEN
Commission Sportive

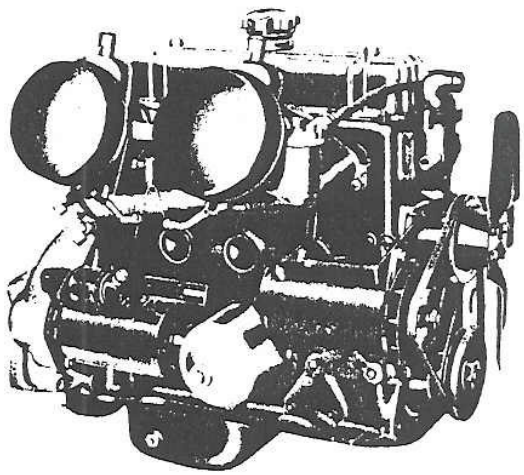
Nils Björkman

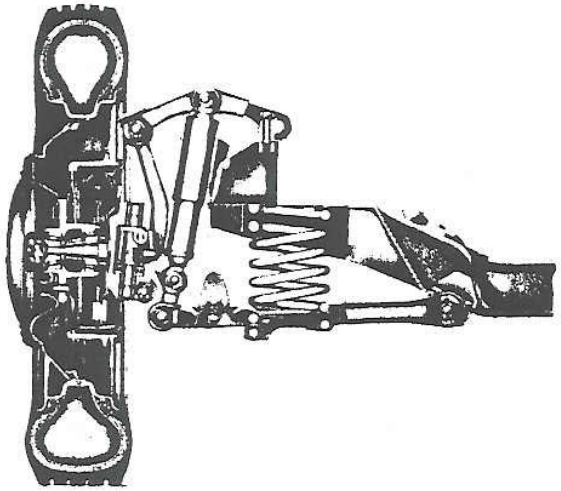
/J 11.11.58

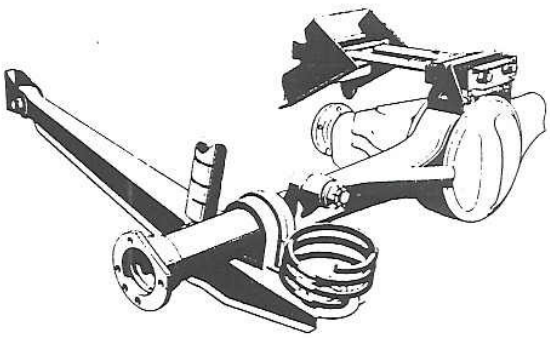


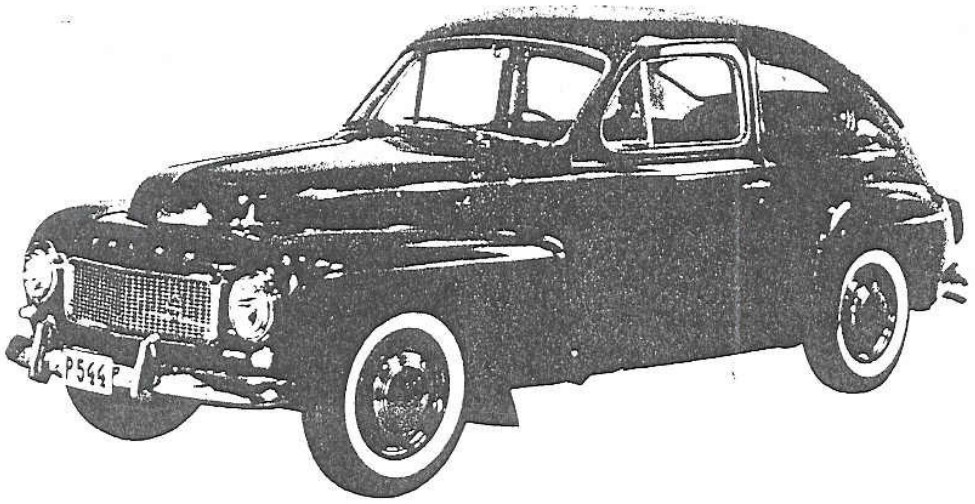
P 54406 A
P 54408 A





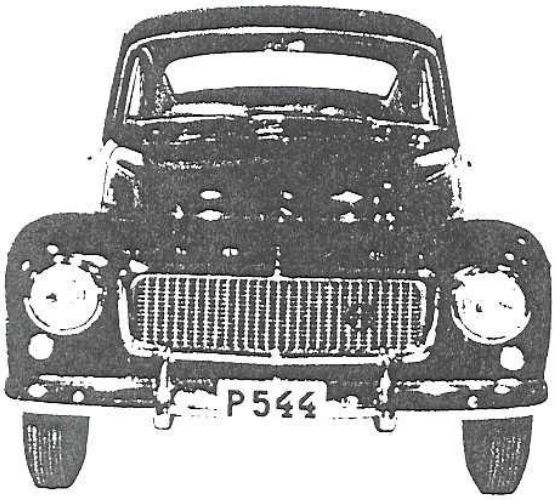


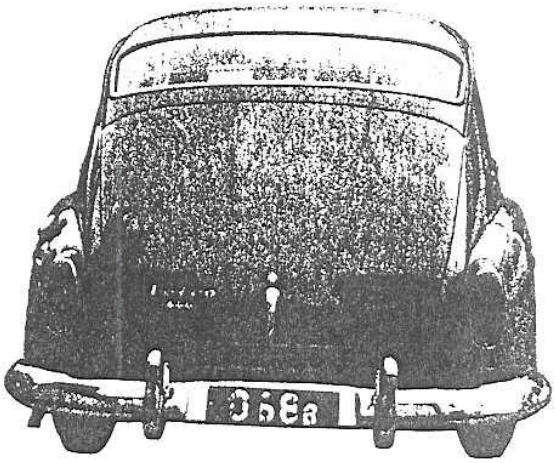


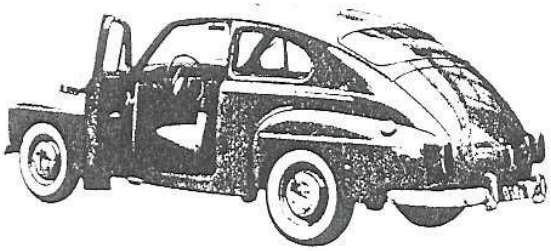


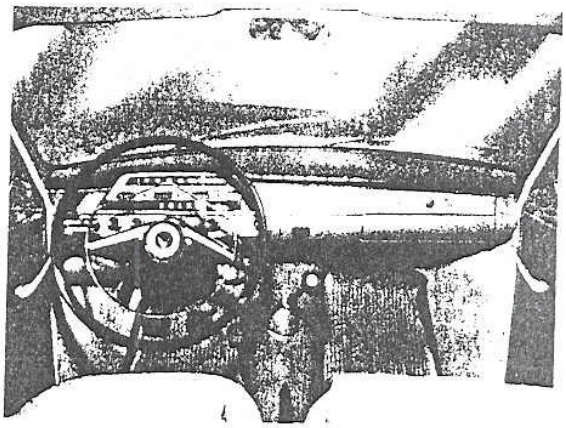
VOLVO

P 544
samtliga modeller









SVENSKA BILSPORTFÖRBUNDET

The Swedish Automobile-Sport Federation

Eric Sandh o Ragge Ekelund

CERTIFIKAT/ CERTIFICATE

FÖR STÅL BURBÅGE
FOR STEEL ROLLCAGE

Tillverkningsnummer: 516
Manufacturing number:

Tillverkare: Guss Motor
Manufacturer: S-13400 Gustavsberg
Sweden 0766/30022

S-134 00 GUSS 0766-30022

Användningsdatum: Sept 90

Svetsmetod: MIG
Welding method:

Typ: Seamless Steel Din 2391
Type:

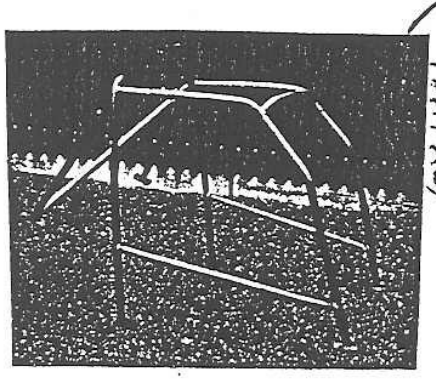
Vikt: 1,85 kg/m
Weight:

GUSS - DEMONTERBAR

Fabrikat: VOLVO PV 544
Make:

Typ: - 59 Sport B 16
Type:

Märkning båge: 516 vänster ben huvudbåge



SAFETY GUSS ROLLBARS

Signeras/Signed by manufacturer

Stämpel och sign. SBF
Signed and stamped by SBF

VOLVO TUNING DATA

Car tuned at Steve Harris Engineering 10/7/92 when following figures were produced

MPH	38	44	50	55	60	68	72
RPM	3000	3500	4000	4500	5000	5500	6000
BHP	55	65	82	95	115	105	100
CO	13.1	12.5	13.4	13.4	12	7	8

SS carb needles

Car tuned by Steve Harris Engineering 11/7/94 after fitting lower 4.88 to 1 diff and looking for more top end power

MPH	55	60	68	72	?
RPM	4500	5000	5500	6000	6500
BHP	92	98	104	105	98
CO	9	7	7	7	7

modified R1 needles on a very hot day !
car was much more tractable

Car now has modified cylinder head - same valves - slightly higher compression ratio - ports opened up - new valve seats to permit super unleaded fuel. Head produced by Marcos-Volvo racer David Methley.
Distributor from Sweden to match existing camshaft. Suggested setting 36 degrees of advance at 4500 rpm. NGK BP8HS plugs. Needles also provided from Sweden to try.

CARB NEEDLES

	RG	KD	SWEDEN	RE	TN	SY	R1	R1M	SS	SZ
1	.100	.099	.099	.099	.099	.099	.099	.099	.099	.099
2	.095	.095	.095	.095	.0945	.095	.095	.095	.0945	.0945
3	.0905	.0908	.091	.092	.091	.091	.0912	.0912	.0905	.0903
4	.087	.0883	.088	.089	.087	.0875	.0881	.0881	.086	.0858
5	.0836	.0856	.084	.0856	.085	.0855	.0846	.0846	.084	.0837
6	.082	.083	.083	.0805	.082	.0825	.0804	.0804	.080	.0798
7	.0768	.0775	.078	.0753	.078	.078	.0763	.0763	.0755	.0753
8	.0732	.074	.073	.0712	.073	.075	.0722	.0722	.0715	.0707
9	.070	.0705	.0695	.0670	.0655	.069	.067	.067	.0655	.0643
10	.0655	.067	.066	.0628	.060	.063	.060	.0595	.059	.057
11	.0630	.0635	.060	.0587	.0535	.0575	.0567	.054	.0535	.0508
12	.060	.060	.0545	.0543	.050	.0525	.0525	.0475	.0485	.047
13	.057	.0565	.0515	.0501	.0475	.049	.049	.0425	.045	.0445
14	.054	.053	.050	.046	.042	.046	.045	.036	.042	.042

Car tuned by Steve Harris May 1996
75 bhp when we started - far too much ignition advance
results as follows:-

RPM	4500	5000	5500	6000	6250	6500
BHP	90	98	107	112	108	108

Needles from Sweden(Uno) very slightly richer at top end
2 flats down on mixture jet
17 degrees BTDC static = 35 degrees at 5500 rpm NGKBP7HS plugs
B20A distributor

Now have correct late B20A aluminium distributor to try also some recommended platinum Bosch WA5P plugs
Steve tried the Bosch and the car misfired so we stuck to the same NGK BP7HS - as before
Steve tried the later distributor and again we were better with the earlier B20 distributor

We then ran the car with the Weber 45 DCOE carbs with the following setting

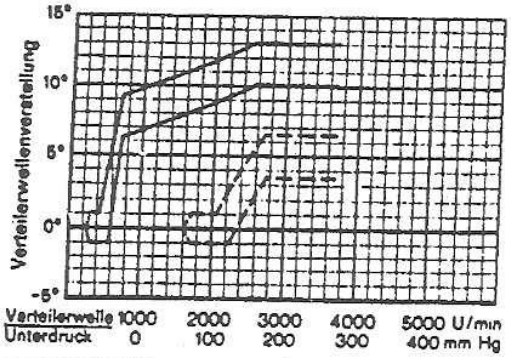
Chokes 36
Emulsion tubes F2
Auxillary venturis 4.5
Main jets 170
Air correctors 160
Idle jets 45F8
Acc pump jets 60
Pump valves 50
Needle valves 200
Float 8mm
Float level 11mm

We got the following figures

	RPM	4500	5000	5500	6000	6250	6500
at wheels	BHP	88	108	115	118	118	118
	CO %	6.5	5.5	5.5	5.5	6.5	6.0

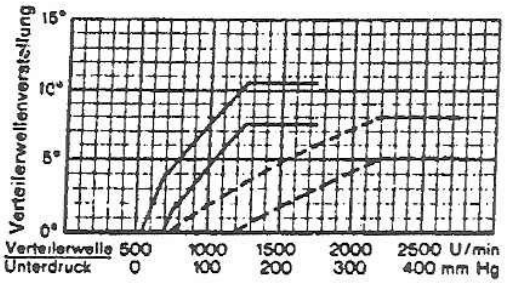
The engine pulls much better at the top end, which with a 4.88 diff is where it wants to be and pulls to 7000 rpm easily in top whereas with the SU,s the best power was at 5000-5500rpm.
Car does not run on when you switch off and also the engine runs much cooler.

March 1997 - 1820 cc - Cosworth forged pistons -
New engine - rebuilt by David Methley - H3 cam - twin plate clutch(mistake as too fierce) - alloy flywheel - gives 118bhp at 6500 rpm on Tom Airey's low reading rolling road
As Tom's rolling road is notoriously low I estimate the car has at least 125bhp at wheels - possibly more
B 20A aluminium distributor - static advance app 15 degrees
Weber settings 45DCOE13
Chokes 38 Emulsion tube F16
Auxillary 4.5
Main 160
Air corrector 200
Idle jet 65F8.5
Acc pump jets 35
Pump valve 100
Needle valve 200
Float 8mm
Float level 11mm
Engine is brilliant - no running on - no overheating - just gets to 3000 rpm and goes - have set rev limiter at 7000 rpm as I otherwise I am sure to over rev it



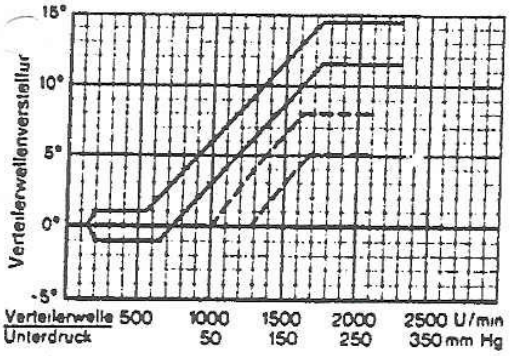
0 231 305 054
PFU 6

min. 0,30 mm | 38 ± 3° | 500 ... 630 p



0 231 170 101
JFU 4

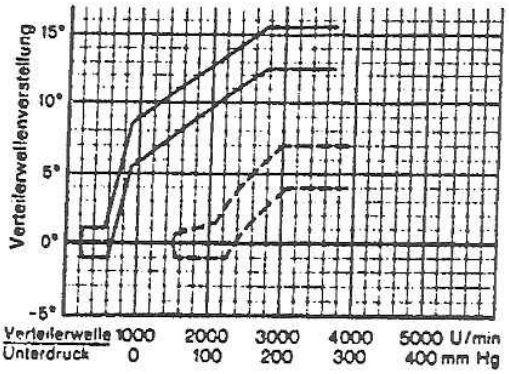
min. 0,40 mm | 50 ± 3° | 500 ... 630 p



0 231 170 085
JFU 4

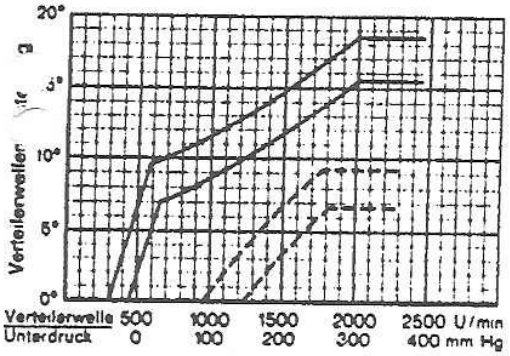
min. 0,40 mm | 62 ± 3° | 500 ... 630 p

BEST DIST FOR B18



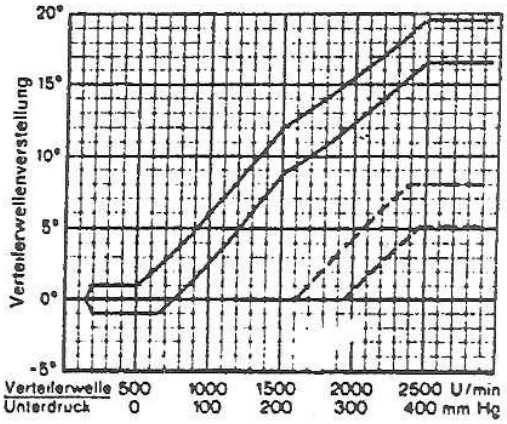
0 231 170 113
JFU 4

min. 0,40 mm | 50 ± 3° | 500 ... 630 p



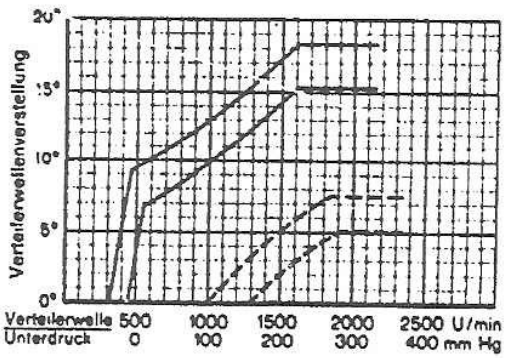
0 231 170 110
JFU 4

min. 0,40 mm | 50 ± 3° | 500 ... 630 p

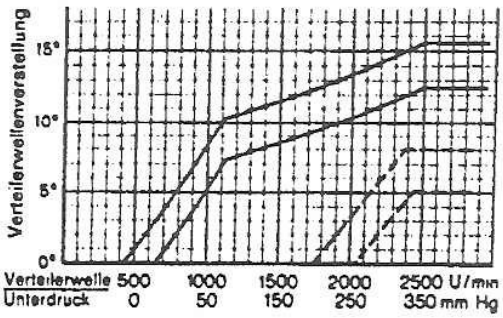


0 231 170 117
JFU 4

min. 0,40 mm | 62 ± 3° | 500 ... 630 p



0 231 170 111



0 231 170 120

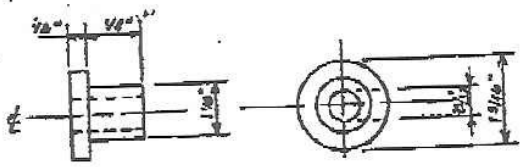


Figure 1
Nylatron wishbone ball pantard rod bushes. 12-off.

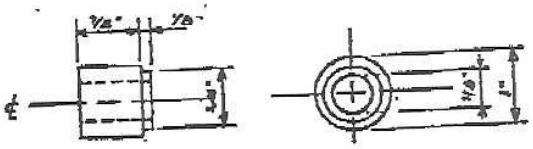


Figure 2
Delrin anti-roll bar bushes. 12-off.

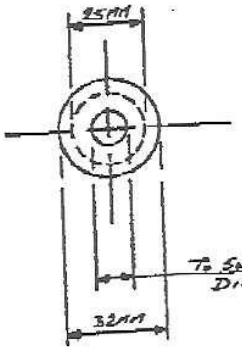
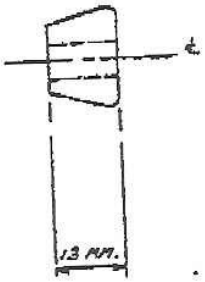


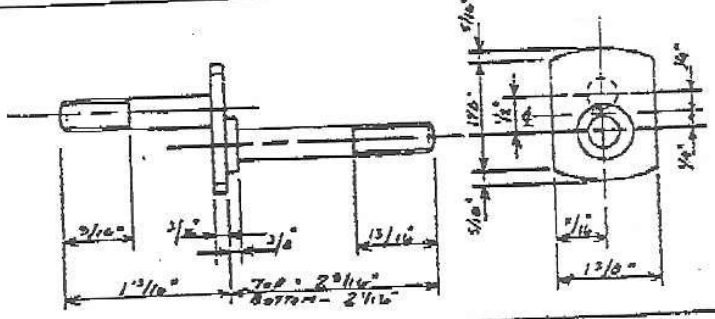
Figure 3
Shock absorber bushes. 8-off.

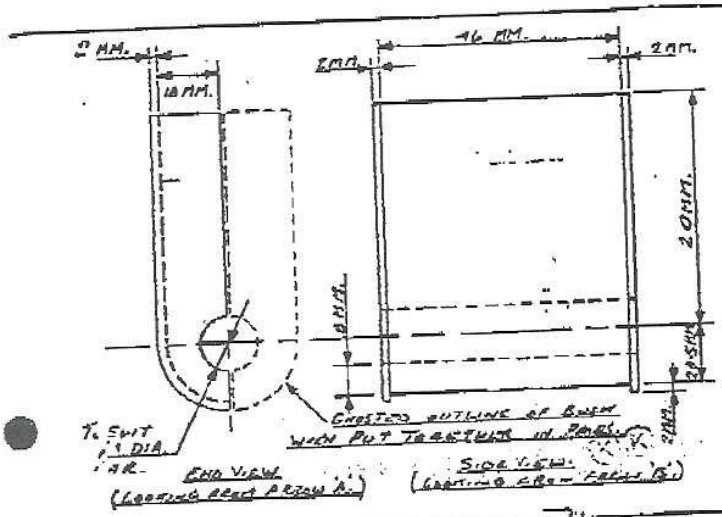


Shock absorber pins suitable for re-locating shocks when fitting disc brakes. Use EN-25 or similar. 4-off. 2-top and 2-bottom mounted.

Figure 4

EN25





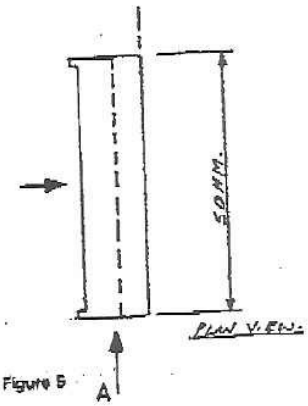
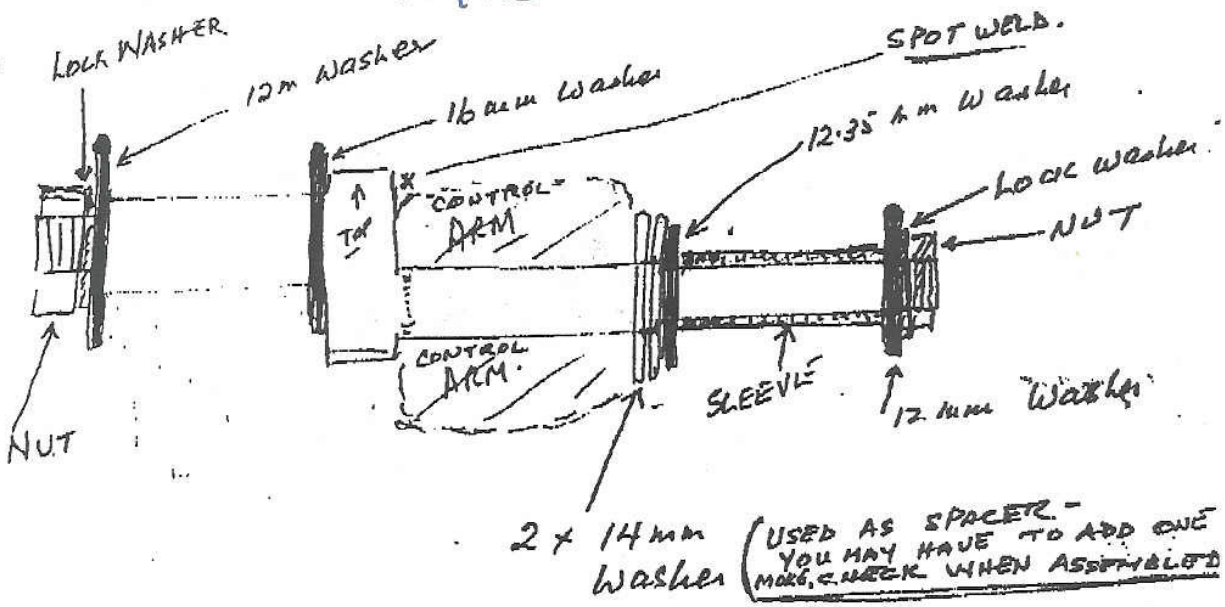


Figure 5

Front anti-roll bar mounting bushes. 2-off.

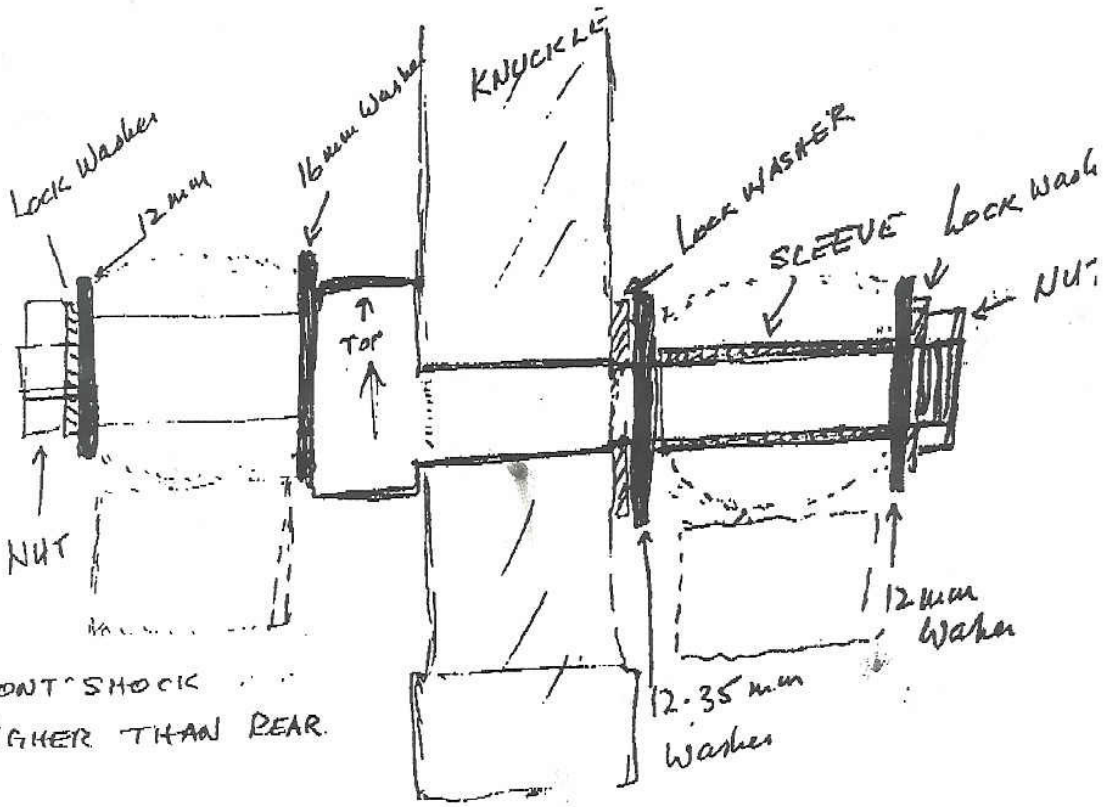
ORIGINAL DRAWING BY JOGINDER SINGH



SUGGESTION.

SPOT WELD PIN TO THE UPPER ARM. AFTER TIGHTENING THE PIN (marked x)

LOWER PIN



NOTE · FRONT SHOCK IS HIGHER THAN REAR.

FIDGEHAND -

PV Front Suspension

by Roger Portman

HAVING recently rebuilt the front suspension on my car and updated it at the same time the following may be of interest to PV/120/P1800 owners. The stripping and rebuilding of the suspension is pretty straightforward so I won't go into it here. However there are a couple of points of interest.

The bottom spring pan and one wishbone are welded together (the other wishbone being detachable). These need to be examined for corrosion as you could have your front springs parting company from the suspension with disastrous results. New sheet metal can be welded over the whole of the spring area on the underside of the spring pan/wishbone assembly, also around the anti-roll bar mounting if this shows signs of corrosion. Inside the spring bowl so to speak, the old corroded metal can be beaten down and brazed to seal it all off.

In my case I then had them shot blasted and hot metal sprayed in zinc, after which I painted them so I shouldn't have any further trouble. The coil springs were also blasted, zinc sprayed, and painted at the same time.

The bottom inner wishbone rubber bushes are prone to rapid wear so I changed them for Nylatron split bushes from IPD in Portland, Oregon, USA. (These bushes also fit the rear panhard rod ends.) These should last indefinitely plus giving a more positive feel to the suspension with quicker steering response, etc (see Fig 1 next page).

Also obtained from IPD was a 1'' diameter anti-roll bar for the front and a 3/4'' diameter bar for the rear. (These need to be used together.) These give a much flatter and higher cornering limit than standard before adhesion is lost. Delrin bushes are available for the ends of these (see Fig 2), although for the mountings to the body I had some Nylatron bushes made as I did not want to use the rubber ones supplied for reasons stated previously.

Coil springs I left standard as I did not want to make the ride too hard. I did, however, use Spax adjustable shock absorbers for a bit more stiffness.

Shock absorber bushes were also fabricated from Nylatron (see Fig 3). The other item of interest to PV owners is the disc brake conversion. The disc assemblies from a 120 Series car will fit. You need the following from a donor car:-

2-disc/hub assemblies
2-calipers
2-caliper mounting brackets
2-dust shields

The whole lot bolts on with one or two exceptions. The caliper mounting brackets have 4 holes for fixing them to the stub axle carrier. The front two are misaligned so you will have to drill two holes in new positions. This is straightforward when offered up to the carrier.

The brake hose retaining brackets on the dust shields have to be moved from the bottom to the top. Goodrich stainless steel brake hoses were used as they are going to last indefinitely and give a more solid feel to the brakes.

Now you have discs on the front but the shock absorbers foul the brake calipers. The answer is to move the shocks to the front of the wishbone. You will need to get some offset pins made from a suitable alloy steel such as EN25, details as shown in Fig 4.

Finally a servo can be fitted if you so desire. If you do this on a PV then the triple brake pipe union on the front of the master cylinder needs to be removed and 2 ports braze-filled as you only need one pipe to the servo, and from the servo one pipe to a pipe cross to serve each disc and the rear brakes.

The end result of all this (when combined with similar work on the rear suspension/axle) is a much better handling car all round, more of a positive feel to it, good brakes, and the sort of responsiveness not normally experienced with a PV.

Relevant suppliers:

IPD Co Inc, Department R10, 2762, NE Broadway, Portland, Oregon, USA.
Suspension bushes, anti-roll bars, springs etc.

Hadland Eng, 127 Chiltern Drive, Surbiton. Surrey.
Nylatron suppliers, bushing machinists.

Chris Hart, tel: 01-788 2406.
Stockists of many second hand and new parts — discs, calipers, brackets etc.

Goodridge (UK) Ltd, Collins Road, Totnes, Devon TQ9 5PJ, tel: 0803-862007.
Stainless steel braided high pressure hoses for oil, water, fuel lines, etc, EN25, shocker pins, anything made to order.

Diagrams next page ⇨

Check wishbones for rust also cross member where top bolts of top wishbone fit

These are a good idea

IPD roll bars are brilliant — the best mod to the suspension for road & going

not necessary

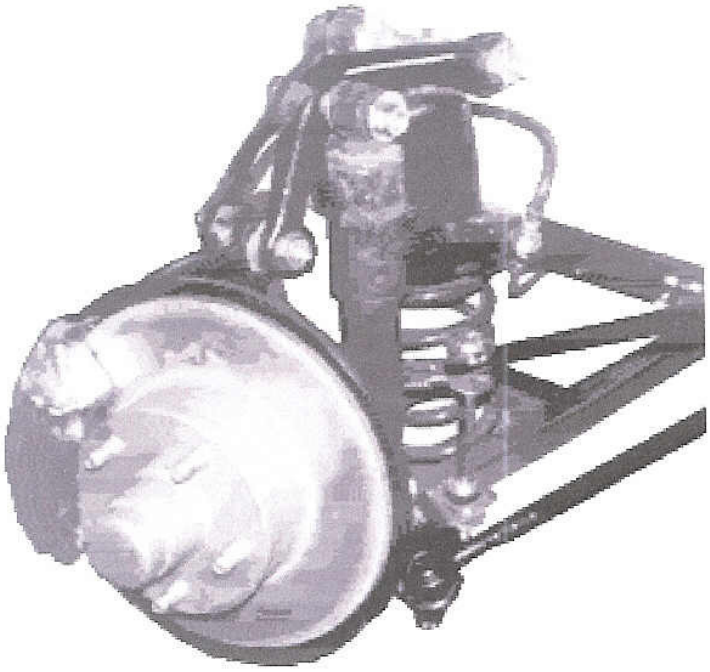
Only if you wish to keep full steering lock

only for the offset pins

Svenska Volvo PV-klubben home page

Disc brakes on the PV

English translation of the story
Sätt skivor på PV:n
in the PV-Entusisten # 2 1999 page 34-35.



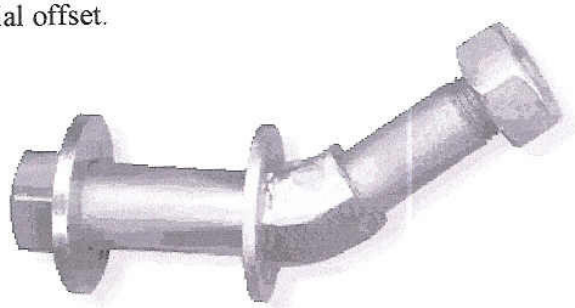
By Dan Janson

One modification that many express interest in knowing more about is the installation of disc brakes on the PV or Duett. As always, when it comes to brake jobs, it is important to do things the right way. Furthermore, the steering system can be affected if the modification is not done in the correct way.
When the PV was introduced, the brakes were claimed to be among the best in the industry. The American manufacturer Lockheed supplied the equipment and these same brakes were fitted on many heavier American cars. Thus there were plenty of good reasons to believe that the brake performance would be excellent.
When the P 544 was introduced in 1958 both the PV and the Duett had brakes of the Duo Servo type. This means that the two brake shoes have a floating connection in their lower ends giving an increased brake power. Despite this, the brakes still had all the drawbacks that are associated with drums including the condition referred to as "Brake Fade" which typically occurs during episodes involving extreme wetness or heavy usage which developed high amounts of heat.
Maybe it is not so surprising that the brakes were claimed

to be efficient in the late 1940's considering the speeds that were used by then. But one who has put a beefed up engine in his PV and intends to make use of it's potential will also wish to ensure that he is able get the vehicle to a stop in an assured manner. The safest way then is to modify the brake system with disc brakes and servo assistance.
Already in the 1960's, rally-equipped PV's were modified with disc brakes and during the 70's and 80's, when the PV and Duett were popular for "hot rodding", a lot of people wanted discs. The Swedish magazine "Start and Speed" in the 70's produced a series of articles called "Project Duett" in which a Duett was modified in a way that was typical for that time. The fenders were extended, the side windows taken away, VW K70 rear lights fitted and a custom front made. An overdrive gearbox and a new dashboard and on top of everything, a Rover V8 engine was also included in the plans. ...And of course, disc brakes.
These were probably absolutely necessary in order to get the car certified with the more powerful and heavier V8 engine.
There are arises several problems when disc brakes are fitted on the car and there are differing opinions on how to solve these problems.
The shock absorber can not remain in its position aft of the control arm. The brake caliper would then make the turning diameter way too big. When the shock absorber instead is moved to a position forward of the control arm it instead interferes with the steering arm, also giving an unacceptable turning ratio. The lower shock absorber attachment therefore has to be modified. This can be made in different ways and is detailed later in this article.
The most suitable combination of parts is a complete brake system from a Volvo 122 with disc brakes on the forward wheels, drums in rear and the reduction valve on the brake line to the rear axle. Brakes from cars made in 1966 – 1968 are to be preferred. Also brakes from 1965 can be used but they do not include the reduction valve for the rear brakes.
Power brake assistance is recommended – this can also be taken from the 122. The power brake system should be hydraulic operated and attached to the main brake line from the main brake cylinder of the PV.
Some important items when fitting disc brakes on the PV:

- The bolt holes on the caliper holder have to be adjusted to fit with the holes in the kingpin holder. One hole fits "almost exactly" and has to be expanded just a little so the caliper holder can be centered on the wheel axle. Then the three other holes can be indicated and drilled.
- The holes on the protecting plate behind the disc must to be modified in the same way as the caliper holder. The brake tube holder on the back of the protection plate has to be modified for brake line clearance.

- The brake disc fits on the PV steering knuckle. 120's and PV's share the same front wheel bearings.
- The shock absorber that is normally aft of the support arm has to be moved forward to provide enough space for the caliper. On the upper support arm the attachment can easily be turned the other way around. On the lower arm a new attachment bolt has to be fabricated. One way is to use two original attachment bolts and weld them together with an axial offset.



Another way is to make a cut in the bolt, bend it and fill the gap with the welder. However this requires a very high quality welding as the bolt is exposed to heavy forces and vibrations. (See above picture).

- One of the two is to be cut off just outside hexagonal end, the other one just inside. The two are welded together with the hexagon ends towards each other. The new attachment is then mounted with the part where the shock absorber is to be attached upwards. Test with the shock absorber attached for to insure no interference of the steering arm.
- The reverse valve in the brake master cylinder has to be removed. It's function is to keep a certain pressure in the brake system. That pressure being balanced by the return springs in the drum brakes system. In the disc brake system the pressure can not be there as the brakes then will be engaged.
- The rear brakes should preferably be changed. The original rear brakes on the PV 544 are Duo Servo. With front disc brakes the rear brakes are likely to lock up prematurely when applying brake power, even if a reduction valve has been fitted. Rear brakes from the 122 are recommended.
- Power brake assistance is recommended. With no servo-assist, the brakes will likely need a lot of pedal pressure.
- If a brake servo is fitted, the three-way junction on the master cylinder has to be removed and replaced with the four line junction which will also permit fitting the brake light switch. This can preferably be put to front end of the master cylinder attachment. The original brake lines and electric lines for the brake lights can then be used.

These guidelines are very workable in theory and in actual practice. Absolute care and caution should be exercised

when performing modifications to any brake system. While endeavoring to enhance your PV or Duett's ability to stop with greater efficiency is an worthwhile goal, even the slightest oversight or error (yours or ours) may put you and those around you at great risk.
Never "cut corners" or take "short-cuts.
It is prudent to have your brakes inspected by a professional once the project is completed.

Original story and pictures by Dan Janson,
Translation by Dan Janson (thanks to Mark Hershoren for assistance)

Disclaimer:
The modifications detailed herein are performed solely at the risk of the person doing the work. The Svenska PV-klubben will not assume responsibility for the end results or possible damages that could result from undertaking modifications to any automobile braking system.

Page updated November 19 1999.

Classic Cars

Wheel life

●Your complete guide to selling, buying and owning classic cars●

144 BUYER'S GUIDE

Rally to the cause of the Volvo PV544, the tough Swede that's a big hit in historic motorsport

155 DRIVING OUR ADS

Classics driven this month: Rolls-Royce Silver Shadow; two NSUs, a Ro80 and 1000C; Lotus Elan SE; V6-powered Talbot Tagora

148 OUR CARS

Oil leaks force Malcolm to get his Jaguar 420's engine overhauled, using a race unit as a temporary replacement. It's a stormer…

160 SPECIALIST

Cambridge Motorsport uses its experience in competition preparation to develop parts that'll keep classics on the road for years

Plus Auctions, page 162 and Price Guide, page 169. Classified Ads start page 208

Buyer's guide Volvo PV544

WELL-ROUNDED SCANDINAVIAN

Volvo's PV544 models are solid, well-engineered and reliable, as well as being brimful of character. ***Kim Henson*** *takes a closer look at these distinctively shaped Swedish machines*

THE ORIGINS OF THE PV544 DATE BACK TO the Forties, when Volvo was looking to build a relatively small, inexpensive model. The result was the 'beetle back' shaped PV444, production of which commenced in 1947 and continued until 1958. Early cars had 1.4-litre engines, which evolved into Volvo's 1.6-litre (B16) power unit, which was installed from January 1957.

Despite the fact that by the late Fifties Volvo had introduced its famous Amazon range, and that the styling of the PV444 was looking decidedly old-fashioned, the firm introduced a modified, PV544 model, unmistakably based on the earlier car. The distinctive, rounded shape was retained, but gone was the split-screen windscreen, and in its place a more modern, curved single-piece laminated screen was installed. Further identifying features included an increased glass area, larger keyhole-shaped rear lamp units, and a much revised interior, incorporating a new, padded dashboard, and a wider rear seat.

PV544 maintained the distinctive, rounded shape of the earlier PV444

All versions were rear-drive machines, with in-line engine and gearbox layout. Single (Zenith) and twin (SU) carburettor configurations were employed, on both the 1.6-litre engines installed until mid-1961 and the 1.8-litre (B18) units fitted thereafter. In addition to the standard two-door saloons (with a single carburettor and three-speed gearbox), more luxurious Special (three- or four-speed transmissions) and faster, twin-carburettor Sport versions (four-speed) were produced. Duett Utility Estate, van, and Sports Convertibles were built in smaller numbers, and are rare today. All models were sold in left-hand-drive (only) form.

Performance is impressive compared with most family cars of the Fifties and Sixties, especially the twin-carburettor, 1.8-litre models, which are capable of around 100mph and 0-60mph in 12 seconds. Even the single-carburettor, 1.6-litre versions can exceed 90mph (compared with 70-75mph in a 1.4-litre PV444). In fact, the PV models are lighter than the later Amazons, and their dynamic behaviour is altogether different.

On the plus side, the controls are easy to use and the cars are not heavy to drive; the steering is lighter than in the later Amazons. Ride quality is commendable too. In addition, under hard acceleration, axle tramp is far less in PVs, with their positive rear axle location, than in the Amazons. Visibility is surprisingly good as well, except when reversing – the high, enclosed rear bodywork seriously restricts rearward visibility. Wing- or door-mounted mirrors are regarded as essential.

Overall the PVs have a much more old-fashioned feel, especially when cornering (the front suspension design is essentially pre-war and the cars were designed to run on cross-ply tyres, for example). You really have to drive the cars through bends. Having said that, Volvo PVs are still very popular in historic motorsport, in which their performance potential and inherent toughness counts for a great deal.

Interior accommodation is reasonably spacious, but the front seats are not very comfortable for long journeys, compared with the Amazon models. The boot is usefully shaped and roomy, and a ski hatch is incorporated, allowing long loads to be passed through the rear seat.

Fuel consumption is reasonable; better than 30mpg can be achieved on long runs, with nearer 25mpg being attainable in town driving/hard use.

In terms of everyday practicality, the 1.8-litre cars with 12-volt electrics are usually considered to be better bets than the 1.6-litre models with six-volt systems. Whichever you choose, you won't be disappointed. PVs are well-engineered, solid and enjoyable machines, with few vices.

Thanks to: John Smith (Volvo Owners Club); Keith Wilson (Owners Club PV Registrar); Tony Barrett (South Service); Ann McCormack and Alan Waterman

What you should pay

£1000-£2000 *Sound cars in need of work*
£2000-£4000 *Reasonable examples in need of minor tidying*
£5000+ *PVs in first-class condition*

History of the Volvo PV544 (UK versions)

October 1958 *PV544 introduced, replacing PV444 on which it was based. It featured a single-piece, curved windscreen (previously divided), wider rear seat, bigger back window and indicators, revised and padded facia, twin carburettor, 1583cc (B16) engine, three- or four-speed gearbox and coil spring suspension at both front and rear*

August 1960 *Introduction of revised interior, heater and gearboxes (now all-synchromesh)*

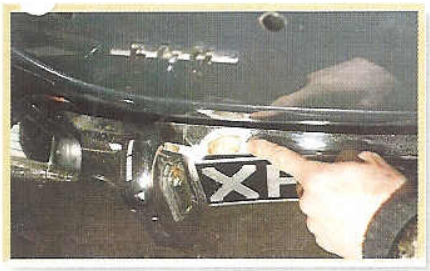
August 1961 *1778cc (B18) engine, 12-volt electrical system, updated steering mechanism, revised grille*

October 1965 *Discontinued*

Van versions of the PV are particularly rare. This one, owned by Alan Wakerman, is scheduled for restoration

CHROMEWORK

Check condition of chromework; replacement bumpers virtually unobtainable now

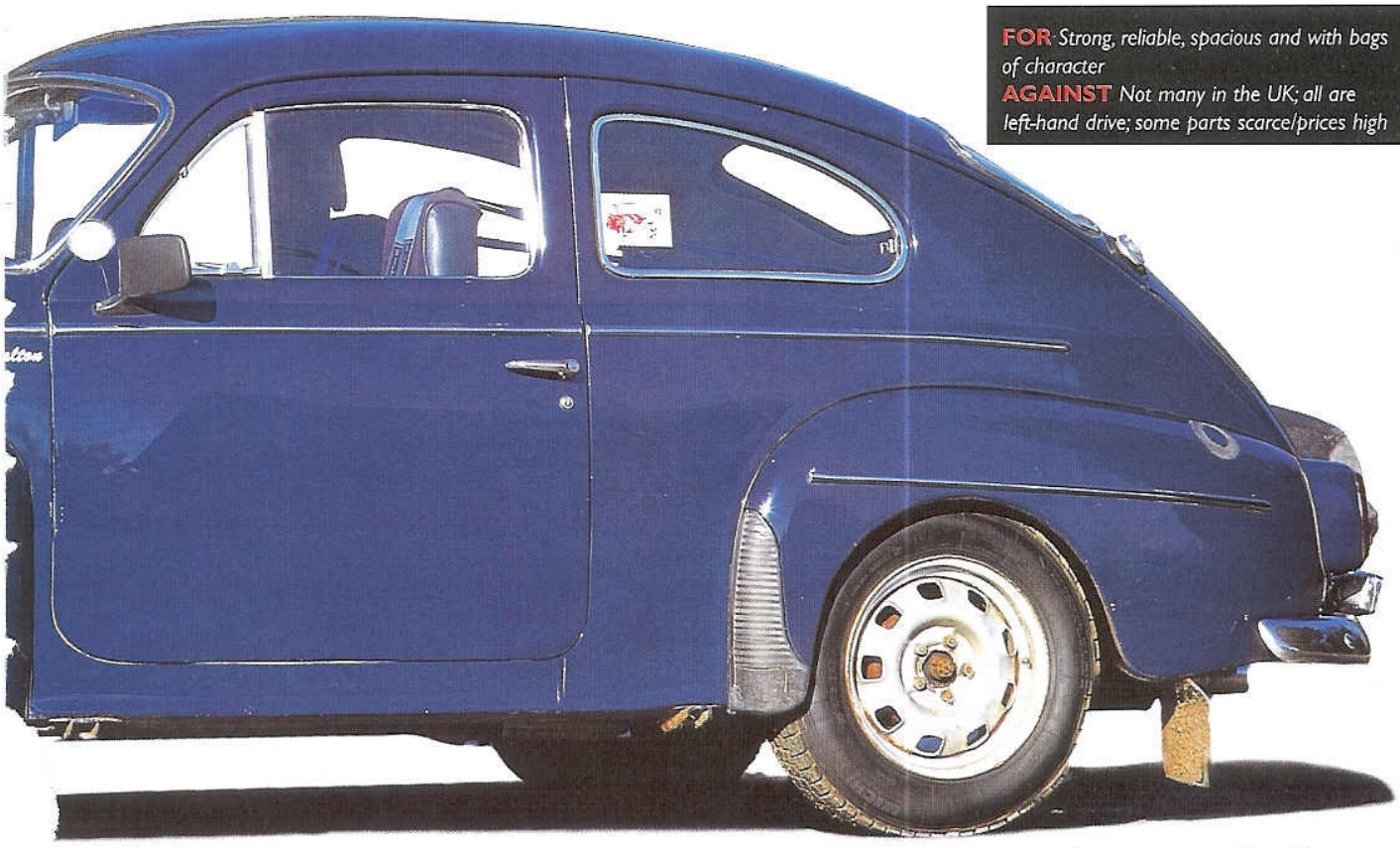


SILLS

Sills are often rusty but rectification is straightforward and replacements, if required, are easily fabricated from scratch

REAR WINGS

Joints between rear wings and bodywork can be rusty, as can forward sections of rear arches where wings attach (captive nuts)



FOR *Strong, reliable, spacious and with bags of character*

AGAINST *Not many in the UK; all are left-hand drive; some parts scarce/prices high*

PHOTOGRAPHY BY COLIN BURNHAM

Specification in brief

Produced 1600 (B16), 1958-61; 1800 (B18), 1961-65
Profile In-line four-cylinder OHV (pushrod) engine with cast-iron cylinder block and head, and three-bearing crank (1583cc, B16) or five-bearing crank (1778cc, B18). Three/four-speed 'box, centre floor change (all-synchro from mid-1960). Rear-wheel drive. Suspension: coil spring/wishbone front, coil spring rear, with link rod/torque arm. All drum brakes (discs optional on later models)
Power B16: 66bhp; twin carb, 85bhp. B18: 75bhp; twin carb, 90bhp
Performance B16: max 90-95mph, 0-60 17sec (twin carb 14sec). B18: 90-100+mph, 0-60mph 14sec (twin carb, 12sec)

Selection of specialists

Pole Classics (Alan Waterman), Coombe Hill Garage, Coombe Bissett, near Salisbury, Wiltshire SP5 4LN. Tel. 01722 718722. Parts, service, restoration
South Service (Tony Barrett), Arch 162, Stamford Brook, London W6 0SE. Tel 0181-741 3300. Also at Unit 48, Fox's Mill, Wellington, Somerset TA21 0AB. Tel 01823 666858. Parts, service, restoration
Amazon Repairs (Charlie Garrett), Unit 2, The Old Thames Water Authority Workshops, Sandford-on-Thames, Oxfordshire OX4 4XZ. Tel 01865 771166. Parts, service, restoration
Amazon Cars (Nick Yandell), Gowers Barn, Dales Rd, Fressingfield, Eye, Suffolk IP21 5RL. Tel 01379 588000. Parts, service, restoration
Cumbers Garage, Lower Manor Road, Brixham, Devon TQ5 8HF. Tel 01803 857620. Parts, service, restoration
LH Motors, rear of 110, Upper Richmond Road, London SW15. Tel 0181-788 2406. Parts, service, restoration

Spares prices

Prices from Pole Classics. UK buyers add VAT

Front wing/rear wing	£450/£350
Chrome bumper	£240
Headlamp	£85
Cylinder head gasket set	(approx) £35
Full set engine gaskets	£60
Clutch assembly	£85
Kingpin set (both sides)	£72
Exhaust comp/standard	£450/£156

Clubs

Volvo Owners Club John Smith, 18 Macauley Avenue, Portsmouth, Hampshire PO6 4NY. Tel/fax 01705 381494
Volvo Enthusiasts Club, Kevin Price, 4 Goonbell, St Agnes, Cornwall TR5 0PH. Tel 01872 553740

Checklist


Front seats can collapse and are difficult to replace

Engine These are generally tough units, straightforward to maintain. Regular changes of oil and filter will help to give very long engine life – check service record if available. Start motor from cold, listen for knocking from crankshaft/bearings. It's imperative that the oil filter should incorporate a non-return valve, to avoid dry running and severe wear when starting up; genuine Volvo filters are so equipped. The fibre timing wheel can wear, but longer-lasting replacement sets in steel are available.

Examine engine carefully; an oily coating over the top indicates fuming, eventually necessitating an overhaul. Apparently high oil consumption may merely be caused by oil leaking down the valve guides – the valve stems do not have conventional oil seals.

Check also for oil leakage from the felt seal at the rear main bearing. Modern seal kits are available to improve matters. Cylinder head gasket sets for the B16 engines are becoming very difficult to source.

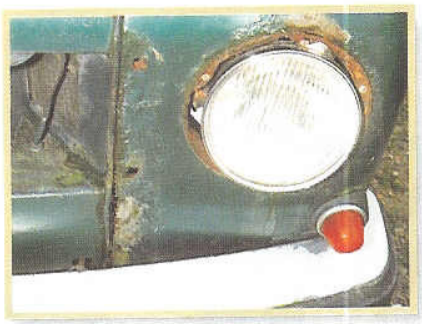
Transmission Always check for excessive free play (and vibration) in the gearchange. Original parts are unavailable but worn units can be modified inexpensively (for example by Pole Classics).

Gearbox Should operate quietly in all ratios. If the transmission is quieter in top gear than in the others, budget for replacing the gearbox bearings. Check for driveline vibration, due to wear in the propeller shaft couplings.

Running gear Front suspension/steering is pre-war in design, potential problems including wear in the kingpins and upper and lower threaded trunnions, plus possible fracture of the

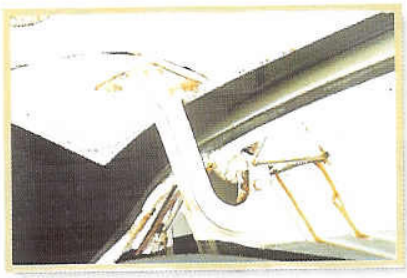
FRONT WINGS

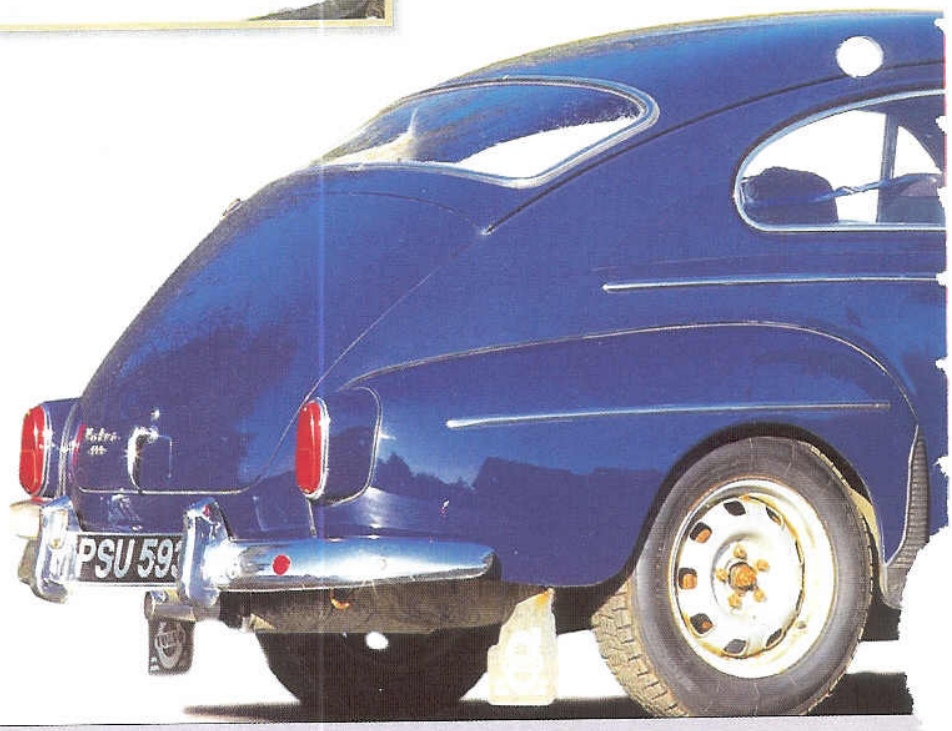
It's unusual for front wings to be this rusty but check, especially around headlamps



SCREEN PILLARS

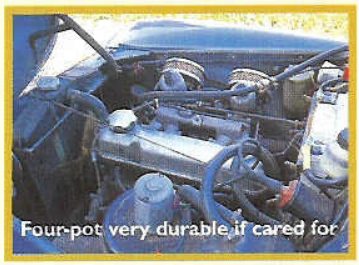
If boot lid is closed in an incorrect way the left hinge can be bent; rain then leaks in





front upper wishbones, near to the sub-frame mounting point. Replacement components are very hard to find and can be expensive, also special tools are required during overhaul.

The drum brakes work fine when properly set up, but generally require more maintenance than a disc/drum arrangement. Conversion to Amazon front disc brakes is straightforward, and – especially if a servo is also installed – transforms braking efficiency and feel.


Four-pot very durable if cared for

Bodywork The PVs were Volvo's first unitary construction cars, and all are now at least 33 years old, so it pays to check the structure very carefully for rust. The two chassis legs which protrude forwards from the main bodyshell can corrode badly, particularly where the front sub-frame bolts on. Closely scrutinise front wing extremities, especially around the headlamps.

Open each door and examine the 'kick step' panel, comprising a steel section with rubber on the outside. The steel can rust and replacements cost £200 per side. The lower edges of the doors themselves can rust away too; inspect closely.

At the back of the car, the body can rust around the seam marking the perimeter of each rear wing. Also prone to rust are the lower parts of the body side panels, around the bases of the B-pillars and ahead of the rear wheels.

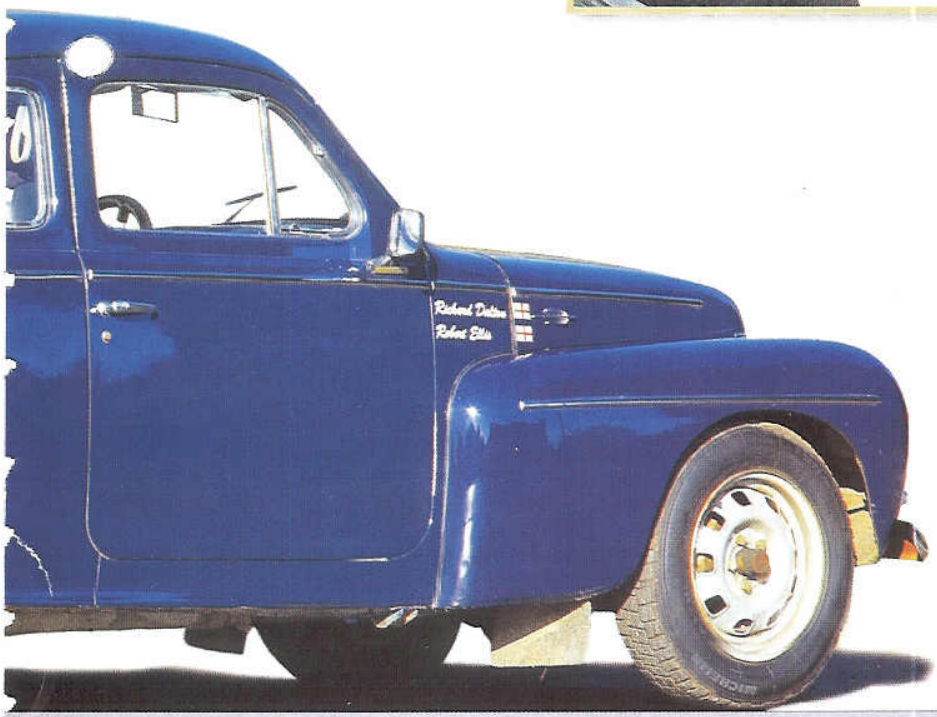
Rainwater can enter the boot, and can collect just inside the rear panel, but replacement panels are available. Ensure always that the boot lid sits neatly against the bodywork around both hinges. Some panels – including unused front wings – are extremely scarce now. 'New' bumpers are also virtually unobtainable; check condition of chrome.

GEARCHANGE

Check for excessive free movement. Restoration of precise feel is inexpensive

FRONT SEATS

Front seats are prone to breakage, especially corners of framework at rear



Why I own one

Ann McCormack
1964 PV544 saloon

OWNER OF A VINTAGE COSTUME HIRE shop, Ann McCormack has always liked the Forties styling of the Volvo PV models. Two years ago she parted with a Porsche 911 in favour of her present PV544, which originally came from Denmark. She has since used the car daily and has found it very easy to drive, as well as economical.

Ann says that the Volvo is a good family vehicle, and there is plenty of room for her two children. It performs well both in town and on longer journeys, on which she prefers to maintain a speed of around 60mph, but no faster.

She finds that people are often stopping to chat about the car, and appreciates the camaraderie that fellow drivers of PVs show too – they always smile and wave. Ann has also found that drivers of modern vehicles are more courteous towards her when she is driving the Volvo than they were when she was behind the wheel of the 911. As she puts it, 'I reckon I save around two hours a week in time spent travelling to and from work, simply because other drivers now stop and let me out into the traffic.'

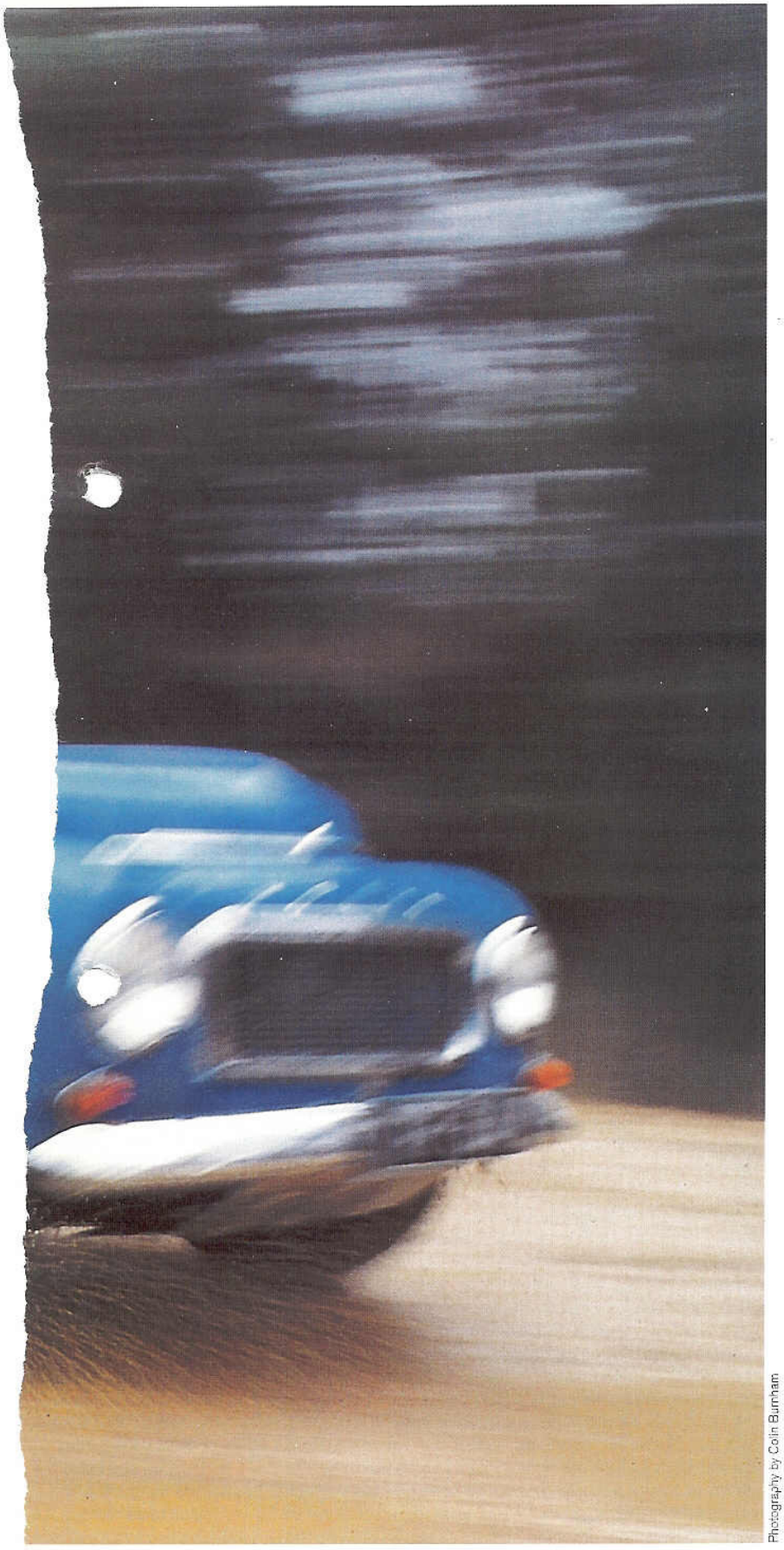
Modifications made to date include the fitting of seatbelts, a radio and electric aerial.

Maintenance, carried out by Ann's husband, has been straightforward, with no major repairs needed so far.

Ann is very pleased with her PV544, and says that it has lived up to – and exceeded – her expectations as an interesting and reliable classic to use every day.

Owner's logbook

Purchase price £2200
Miles when bought 91,965 (148,000km)
Miles driven since 9321(15,000km)
Insurance £250pa (fully comprehensive)
Problems None at all so far
Costs None, apart from routine maintenance



Photography by Colin Burnham

BLUE RINSE

Stodgy old Swedish bus or rally driver's secret weapon? Robert Coucher takes this Volvo sideways through the rough to find out

Blue: bright, electric, vivid and vibrant... every conceivable metal surface of this exquisite rally-prepared Volvo PV544 is lusciously covered in the outrageous hue. It's war paint; the colour of a confident winner. Red mist is usually associated with rising blood pressure when clambering behind the controls of a competition machine. In this case it's different. It's blue mist all the way!

Before the arrival of the editorial team at the Bagshot rally test track, ex-Ford rally ace Dave Skittrall (London-to-Sydney entrant in 1968 and London-to-Mexico in 1970), could not contain himself. He took the mint, 'straight-from-the-shop' PV544 for a quick shakedown around the incredibly rough test facility – and he assuredly didn't spare the horses. In later laps, when I sat in as a passenger with him, his smooth, fluid style was displayed clearly but the car beneath him was wrung out to within an inch of its limits as he sped along the tracks at inconceivable velocities.

Co-driver and owner Andy Millns was standing on the sideline ever so quietly as we arrived. We commiserated with the feelings we read into his anguished look on hearing the Volvo thrashing through the trees like a demented rhino. It burst forth in a full, glorious four-wheel drift, careering through Land Rover-sized potholes and disappearing in a spray of mud and water.

Fortunately this '63-vintage machine has been meticulously prepared by Bruce Stevens and his team at Classic Motorsport. Bruce is already well known for his thumping great racing Ford Falcons and indecently quick Lotus Cortinas. This is his first foray into Volvos.

The question we did not want to ask was whether the blue missile would withstand the onslaught... It did, with as much composure as Dave allowed. The only damage of the day was a severe stone-blasting of the rear wings and a loosening boot catch. These eccentric Swedish cars are as tough as they are fast.

Top, stripped-out interior is beautifully finished, with custom-built cage, drilled footrest for navigator and modern instruments

Right, beautiful 70-litre aluminium tank is situated over axle line to improve handling. Original wheels are now rare, left. Note fuel filler cap and reversing light

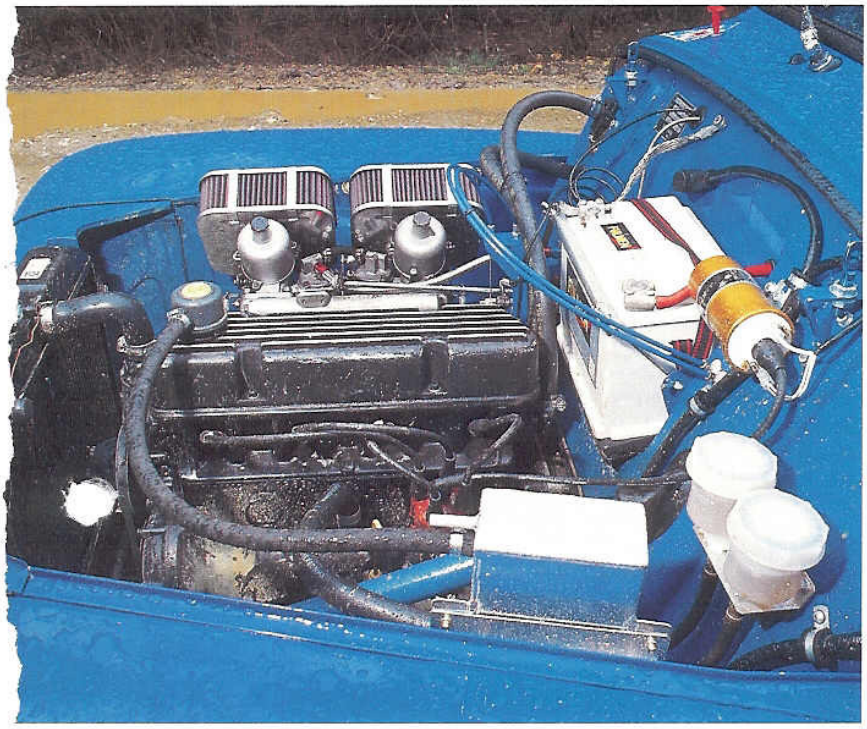
Andy Millns went to watch the Charrington's Historic Rally with Bruce a while ago and saw a couple of PV544s in action. They looked good and sufficiently different, so he had to have one. He then went to a Volvo club meeting and found this example, in from the States, selling for £2,000. That was just the beginning – then Bruce moved into action and turned the original, tired car into this demon, now ready to conquer the tough Historic Safari Rally around Kenya.

Virgin PV544s are great cars; this well-massaged example is even greater. The hunchback, antiquated look belies its potential as a driving machine. Joginder Singh and Tom Trana, among others, demonstrated the car's prowess in many rallies in the past and it is gaining an enthusiastic following in today's historic events.

Volvo really lost its way when it stopped building the PV544 and the highly-regarded subsequent Amazon series. Thereafter its cars became solid, stolid and boring, right up until the current turbocharged 850 T5 S, the violently-yellow-painted estate now selling to mad labrador owners. Return of a sense of humour!

PV544s built in Gothenburg, Sweden from 1944 (as the PV444) until 1965 were only ever left-hand drive with two doors. This rally car is a Sport model but it has all the mods allowed by the Appendix K rules for historic rallying. So, apart from the wonderful two-pack Ford Transit blue paintwork (which really does make it very different to the usual red or white ones), it has various other subtle alterations. Chassis work includes uprated dampers, two per side on the front working with the

Thanks to Bruce Stevens of **Classic Motorsport** (0181-446 2524), who prepared this Volvo PV544, Andy Millns, the owner, for his time and Dave Skittrall for scaring us half to death!



Top, car handles incredibly well in the rough. Above, superbly-prepared B18D engine, now mud-spattered. With original radiator, K&N air filters and dual-circuit brakes, it's Appendix-K-legal

unequal-length A-arms and coil springs, and front Tar-Ox discs in place of the standard 9in drums, as well as a homologated front anti-roll bar. The rear axle is solid, with a limited-slip 4.88:1 diff. Also coil-sprung, it's well located by stamped radius arms and a cross-chassis sway bar akin to those fitted on early Alfa Romeos. The car's styling may make it look reminiscent of a '41 Ford but the integral-construction bodywork combines with the well-sorted suspension to make its handling close to a rally driver's dream.

Early Volvo engines are renowned for their ability to yield plenty of reliable power. This B18D Sports engine is straightforward in design but beautifully wrought. It's a simple overhead-valve unit but the detailing is inspired. The five-bearing crank is able to handle much more than its 1,800cc capacity and 90bhp standard output. This particular motor, strictly constrained by homologation limitations, pushes out a reliable 125bhp at the flywheel (95bhp at the rear wheels). Fitting the later Amazon exhaust manifold increases the urge to over 135bhp but is, unfortunately, not permissible for the rallying series in which this car competes.

Making the most of the extremely rugged bottom-end is a sophisticated, free-breathing head. All ports are separate, with matched manifolding and a brace of SU H4 carbs delivering the fuel. Standard Sport engines have a fairly wild cam and this has been left much the same here, to retain the low-end torque that's so advantageous when rallying.

We managed to persuade Dave to vacate the driving seat at last and I was given the chance to drive the blue wonder. In pelting rain and with the car wearing skinny Colway rubberware fitted for the African plains, I felt a little uneasy. Dave admitted that he'd nearly put the car into a ditch so I thought a genteel start would be advisable. The action and the rain had got the interior all steamed up but the demister was doing a valiant job.

The Ridgard rally seats are set low in the car and securely anchored with beautifully-turned aluminium brackets, drilled for lightness. The modern, businesslike Moto-Lita steering wheel therefore feels high, flat and almost in your line of sight. The original ribbon speedo and instrument cluster look incongruous between the remotely-mounted rev-counter on the left and oil pressure/temperature and water gauges on the right. The large orange oil warning light and safety-wired red kill switch smack of the ruthlessly thorough race car preparation for which Bruce Stevens is renowned.

Once you're ensconced in the close-hugging seat, the car feels surprisingly roomy, if sparsely furnished. The floors and body panels are unencumbered by any sort of covering and the roll cage is stretched to the extremities of the shell's interior. With the engine well warmed and idling at a smidgen under 2,000rpm, it's time to go. The clutch is light and nicely sprung. The long gearshift lever pokes out from the floor and reaches close to the wheel. First selects cleanly and the car erupts from the line, the thin tyres biting into the mud with a vengeance.

The rutted track forces the tightly-bound Luke racing straps into your shoulders as the Volvo slithers its way across the crests and bumps. Initially the unnerving surroundings make the drive chaotic. You're concentrating to keep the nose from entering the tightly-packed pine trees as the wipers flay across the laminated screen. Large sweeps of the steering wheel are needed to counter the car's lurid slides. This is real driving on the throttle, and balancing the power with the steering is a delicate act – but what a blast!

The car feels alive and alert as it dances across the chassis-bending terrain. After a couple of laps you learn where the route ducks and dives, and where the worst potholes can be avoided. This allows you to refocus on the car and you realise you're still on the straight and narrow, the car pirouetting about at your command. Its poise on the rough is a revelation. The tail is happy but only goes as far as you let it. The brakes get little use but, when needed, the long-travel pedal, unsullied by a servo, is easy to modulate and full of feel.

Engine noise is loud and all-pervading in this steel cocoon, bereft of trim. The note is not mellifluous – it's a gruff, flat bark – but its power delivery is luxuriant. This beautiful unit, built by Ian Claridge, feels like a

Above and left, flinging car about with abandon proved its prowess on the loose but, below, did not do its rear wings much good

pedigree. Power comes in eagerly and is smooth and ample right up to the 6,500rpm limit. The lightened flywheel, combined with balanced and blueprinted (sorry, couldn't resist) reciprocating parts, makes the power unit want to rev to the limit in every gear.

Thanks to the closely-stacked special ratios in the gearbox, a surge of grunt is only ever a flick of the wrist away. The long, innocuous-looking wand of a gearshift is very rigid and procures the right ratio with precision.

The best control of all is the steering. The humble cam-and-roller steering box communicates superbly: three fluid turns lock-to-lock of light, beautifully balanced feel, devoid of any wind-up. You know exactly what the front wheels are doing and always have a quick chance of catching the Volvo *in extremis*.

A car built for a single purpose is always a joy. This PV544 is light, strong and fast. It is totally dedicated to crossing rough terrain as fast as possible. The raw metal interior and beautifully-weighted controls prompt you to attack insane routes without fear. Tossing a valuable car sideways through the trees seems crazy until you drive a machine like this. This is what it does and you just have to join in. In sweeping, fast bends, you line up the next apex through the side window... How close to the ragged edge we get, the car never lets on.

The Volvo is not the most powerful of machines but it will be tough to match on rally stages. The design sets out to combine the properties of a tank with those of a sports car. The result is that the whole is greater than the sum of its parts – and the sports car wins. CLASSIC CARS

Car has to run with window mechanisms in place. These are all working and original but use Perspex instead of glass – superb attention to detail, as evident with the rest of the car

B18/B20 conventional aspiration tuning

by Roger Portman

HAVING written previously on supercharging of the early Volvo engine, I thought it a good idea to run through some of the aspects of conventional tuning that would be of interest.

As a basic modification you can change your 'A' cam if fitted for a 'C' cam, and leave the rest stock. A golden rule with camshaft changes is also to change the followers (or dress off the old ones and have them re-hardened), otherwise you will wreck the new cam in no time at all. A reasonable result with this cam is achieved with the fitting of the twin 1¾" SU carbs, suitably re-jetted and 80 thou. ground off the cylinder head.

Moving on from this you can use a 'D' or a 'K' cam giving 280 and 277 degree duration respectively. These cams will give you good power characteristics from 2500rpm, although you really need a 36/36 DCD downdraft Weber carb to realise the potential of these cams. Better still, use a stage one head with 44mm inlet valves and 35mm exhaust valves. This would naturally have been polished and ported together with balanced chambers.

Once you've got this far you need twin 45 DCOE sidedraft Weber carbs on a matched inlet manifold together with a good extractor exhaust manifold and a straight through exhaust system. Remember, the object of the exercise is to get the motor to breathe much better and also to get the fuel/air mixture in and the exhaust gases out as smoothly as possible.

To re-cap then, this set-up will give you up to 130bhp approx, depending on carbs, compression ratio, etc.

More radical cams such as the 'F' cam at 300 degree duration or the 'R' cam at 287 degree duration will step up the power to about 150bhp but it must be remembered that the power with these cams comes in at about 4,000rpm. Not so attractive if you spend a lot of time in heavy traffic conditions.

The camshaft is the single most important item in an engine with regard to power gains and also engine characteristics. You are in effect shifting the power band up the rev range. Therefore, the more power gains you make at the top end, the more intractable the engine becomes at low revs (this is where the supercharger scores as you can get the best of both worlds). Incidentally, a stage two head with 44mm inlet valves and 37mm exhaust valves, with the 'F' or 'R' cams, will give about 170bhp and be slightly more flexible than with a stage one head.

There are stage three and four heads available together with wilder cams and 48 DCOE and 50 DCOE Weber carbs to suit, but this is only of academic interest to anyone who wants to use their car on the road as these set-ups are only suitable for out and out racing. Incidentally, always use a good set of air filters such as K & N on the road otherwise your tuned motor will have a much shorter life.

The ultimate B20 can be as large as 2.3 litres and give 230bhp. Not bad for a four cylinder. Big bore kits are available and would give more low down torque as well as more power. These outputs are possible with reliability from the B18/B20 due to its immensely strong design, five bearing crank, etc.

With all but the most mild of tuning you will be revving the engine higher to realise all the new found power so it is only sensible to have items like pistons, connecting rods, rockers, flywheel lightened and also dynamically balanced together with the crank and clutch. Flywheel lightening will not give you more power as such, but will give you a snappier throttle response. The crank could also be tuftride hardened (low temperature liquid nitriding). This gives an increase in resistance to wear and fatigue. This is also a good idea for conrods together with shot peening. For persistent high rev use (over 6,000rpm) line boring of the block and strengthened main caps are advisable. Also, don't forget to use new high tensile bolts for the main and big end caps.

Moving on then, the fibre timing gears are okay for up to 150bhp although an all-steel set-up (lightened) is a better bet for longevity and accurate timing. Up to about 150bhp, 5/16" dia pushrods should be used together with special cam followers to suit. For higher outputs go to 3/8" dia; this is to prevent flexing at high revs so upsetting the valve timing. For the same reasons alloy rocker pedestals and brass sleeve spacers instead of the normal springs should be used on the rocker shaft. This will keep the valve train rigid. The ultimate are roller rockers in a one piece alloy pedestal, but that does not concern us here. Single valve springs are okay up to 150bhp/6,000rpm but over these figures double valve springs should be used for more valve control and to eliminate valve bounce.

With regard to pistons, cast items are okay up to 130bhp but again, for maximum reliability and for over these figures, forged pistons should be used as they are more tolerant and have lower frictional properties.

Going back to the cylinder head for a moment, bronze valve guides are a good idea to reduce valve stem friction and dissipate the heat faster. With double valve springs you will need to machine the valve seats to take the larger diameter outer coils, and special valve spring retainers are needed.

On B18 heads if you use larger valves you will need to change the valve guides from 11/32" to 5/16" dia (bore) as per the B20.

On the electrical side a good sports coil and an electronic ignition should take care of things with NGK spark plugs, simply the best. Use BP7HCS, BP8HCS or BP9HS depending on state of tune.

On the lubrication side use a new oil pump and uprate it with some 15% stronger springs, plus an oil cooler and an oil thermostat to keep temperatures within acceptable limits. Uprate the front timing cover by machining to take a B30 neoprene oil seal; you can do the same at the rear (on B18s) by changing the oil seal and carrier for the same items off a B20 or by machining your old B18 carrier to take a B20 rear oil seal.

A B18 or B20 distributor can be used set at 12 degrees advance or thereabouts, and the vacuum tube disconnected and suitably blanked off. The tuning suppliers who supply the carbs can give you the jet settings although final setting up *must* be on a rolling road. An electrical fuel pump will be required to prevent fuel starvation on the more modified engines.

Finally, don't forget the clutch should be uprated to enable you to realise all this new-found power. Other items to consider are an electric fan, engine stabiliser, extra strong head bolts, alloy rocker cover, and maybe even sump baffling if you ever get round to doing any hill climbing or sprinting.

Watch the faces of the Golf and BMW drivers when you blow their doors off! Sometime, I'll describe the procedure for building an engine.

Listed below are some useful addresses:

K.G. Volvotrimming, Box 124, 24200 Horby, Sweden. Tel: 010-46-415-13035
Volvo tuning equipment, modified heads, cams, plus everything else.

I.P.D., 2762 N.E. Broadway, Portland, Oregon 97232, USA. Tel: 010-1-503-287-1179
All of the above plus suspension mods, accessories, etc.

Osselli Engine Services, Oxford. Tel: 0865-248100
All machining and modifying facilities, balancing, tuftriding, etc.

Jeff Howe Exhausts, Kent. Tel: 047485-2347
Manifolds and exhausts, etc.

David Newman Cams, Kent. Tel: 0689-57109
Cams ground to any specification, rocker shafts, etc.

Baldyne Engineering, Kent. Tel: 01-462-1031/ 01-462-4050
All machining and modifying facilities, balancing, tuftriding, etc.

120 AMAZON

VOLVO NOTES FROM STUART COLLINS

The following notes are the result of knowledge from 1988 until today, they also have input from when I ran an Amazon in 1969. They represent a lot of time, effort and considerable expense. You dont have to take any notice of what is written here, in fact you could "bin" it. If you decide to continue with it, beware people, no matter how apparently well qualified, who "know better". There is no point in phoning me if you have gone off at a tangent and done things that I would not understand. IF IN DOUBT, PHONE ME FIRST. The information here is the result of 7 years and over 60 events that my car has done. Many other cars have been built using this list and they have provided much fun, reliability and WINS. I would appreciate any feedback, particularly, problems, their causes and how they were solved so that we could all use the experience. PLEASE NOTE 1408 HOMOLOGATION PAPERS ONLY APPLY TO 2 DOOR CARS.

BODY

I am assuming that you have renovated the body and carried out all the welding that is necessary as you would in any old car and made sure of the integrity of the shell, together with it's suspension mounts and chassis. Then...

Fit roll cage- fire proof bulkhead & fireproof fuel tank by fitting metal sheet over the tank lid which forms part of the boot floor and sealing around the edge- Fit tank guard, be careful when drilling boot floor to secure with self tappers that you don't drill through the tank- my bloke did.

Tank guard is simple to make front goes to floor and rear bolts thru bumper bottom edge. Even better, mount to bumper iron fixings to chassis rail.

You may wish to strengthen front chassis rails to bulkhead making a triangular box to weld into chassis rail to bulkhead.

Strengthen front chassis rail where the steering box mounts on one side and the idler on the other. 1/16"th sheet should do on the chassis rails and once bolts are done up, run a weld down one side to anchor it.

Check that the hole in the front crossmember, that accepts the top shock absorber pin, is not worn (Oval - enlarged - or the metal starting to dish) if so weld a washer over to reinforce. (Or do it anyway). You should do the same under the turret also.

Check bracket on rear axle that accepts the lower pin of the shock absorber is not worn, if so weld washer to reinforce & bring hole to correct size, similar with axle bracket that takes the lower suspension arm. Check body where rear shock absorber tops mount. This might need reinforcing depending on body state.

Change rubber bushes on inner bottom wishbones & inner top wishbones. Nylon bushes are available for top wishbone inner. You may prefer these, I do. These are IPD parts.

Change engine and gearbox mounts Ford competition type. 3 therefore of the narrower RS2000 type.

The best suspension set-up that we have tried thus far is from Stein Johnsen. 4 springs and 4 "works setting" Bilstein or De Carbon shock absorbers. For racing a 1.5" anti-roll bar from IPD is ideal but under our circumstances it causes too much understeer. Our very first attempt at uprating the suspension was 70% increase in the rating of the front springs with 25% at the rear. You must not go any stiffer than that at the back and you want to be careful if you go for lower springs as there is a ratio in the front suspension. We needed the big anti-roll with this set up, but another idea might be 125% uprated springs with the standard roll bar. You would still need the "works" rated shock absorbers with this set up.

If you are going to use the "works rated" shock absorbers, you will have to modify the bottom wishbones to accept what is a different bottom mounting, it is similar to a Volvo 140 type. You need to cut a hole in the wish bone to accept the bottom shock absorber mount and modify the wishbone to accept bolting up through the mount. It is of benefit to move the bottom of the shock absorber out as far as possible without it touching the spring. When this is done it will be necessary to strengthen the the wishbone, this is crucial. Mike Hixon would probably do the whole job for you as he has done it on a number of cars.

Fit new axle limiting straps. If you fit lower springs shorten straps by similar amount. Fit new tin fabricated rear arms. Rustproof them inside as they can corrode without you knowing, from the inside.

Add shims to the inner mountings of the top wishbones to give 1/2 degree negative camber. There are 2 bolts each side and 1,1mm shim added to each bolt, should, if the car is OK, give you the correct amount. If you find the steering could do with a little more "weight" to make it more positive, add a further 1mm shim to the rearmost bolt on each side. This increases castor.

Attached are some poor drawings of the strengthening which you could carry out to the crossmember & wishbones, mine started to sag after about 30 rallies, you could do yours now. If you use 140 type front s/absorbers you will have to strengthen the bottom wishbone anyway, so you could do the whole lot now!

1/4 plate gussets turrets to beam.
Gas weld around spot welding.
Gas weld where tubes come through for inner wishbone

Same for top wishbones.
Bottom wishbone strengthening will be different if you fit 140 type front shockabsorbers but should be obvious.

BRAKES

I suggest, due to the age of the vehicle, new discs, proper exchange calipers from Girling or Volvo, Preferably new master cylinder. Remember this is a single circuit system so no second chances. New flexible hoses - cut away the shrouds from discs.
This is a heavy car so Mintex 1144 asbestos free pads & M20 lined shoes. If Mintex don't have pads, MGB522, I think is the number. They will do 6 sets at a time for you. You have to supply the metal backing & they do it in their labs at their Comps dept. Change fluid after each event. Fit new rear wheel cylinders.
*8/94 I think Mintex have pads in stock now. Speak to John Coates Mintex Comps 01532 534941.

ENGINE

I am told these were balanced from new to quite a good tolerance. But cars of this age have an uncertain history even if the car still has the original motor, which most of them do. If the motor is not the original it is worth checking that a 2 litre motor hasn't found it's way in when someone has found a second hand unit to stick in. The side of the block will show B20. Should show B18.
Although mine had it's original motor it was a long way out of balance & had one apparently odd con rod. So balance crank, rods & pistons, you may wish to have some weight removed from the flywheel. 1lb or so is easy but remember too light a flywheel doesn't help driveability if this is what you want.
I suggest you rebore motor as you are going for quite a high compression ratio so the bores have to 100%. This engine thrives on high compression for good power output. In some cases you will need to grind crank etc. and if the front timing cover & rear main housing have felt oil seals they will need machining for you to use the later neoprene seals from Volvo.
Fit a new oil pump. The only ones available now are for the 2 litre or the 2.1 244 motor and have greater capacity, which is ideal.
Fit a new water pump & any other ancillaries.
I suggest changing the steel by-pass tube which goes from the water pump to the rear of the head as they corrode from the inside and you won't see it until it's too late.
Make sure you only use Mahle Pistons as Volvo did. I am told Karl Schmidt pistons are O.K.
Fit a sleeve to the oil pump drive shaft to support it where it meets the distributor drive. Use only Volvo water pump. (Clipper).

CYLINDER HEAD

These were cars homologated on the 1408 1965 papers with larger inlet valves. You can either fit that size valve or fit a 2 litre B20 head which had these valves as standard. You can get therefore, from a breaker, one of these heads for not much money. Check that the head you buy has not got larger than homologated valve sizes which are 42mm In. - 35mm Ex. as towards the end of the 2 litre engine they did fit larger valves. Assuming you have been able to pick up a head for not much money you can afford to have some gas flowing done. Don't take too much out of the inlet ports as you require gas speed through the inlet to make the S.U. carbs work efficiently. Because the 2 litre head has bigger combustion chambers it will need a lot taking off the head face to get the compression ratio up to a minimum of 10 to 1. If you are going for the ultimate power with say a 3/4 race cam such as say the R-type you want to go to 10.75 to 1. Beyond this you need really to get forged pistons which are not easily available but can be got in the USA. I have been using nearly 11 to 1 with production Mahle pistons. If you are going to use an 1800 head and want to fit larger inlet valves from the 2 litre you need conversion guides as the valve stem diameter of the 2 litre valve is smaller than the 1800. Use valve springs bought from Volvo. Yellow code. 120 or 140 series, they may only supply one type now.

IT IS ABSOLUTELY IMPERATIVE THAT YOU USE A 2.0 LITRE "INJECTION" GASKET, WHEN USING A 2.0 LITRE HEAD. IT IS THE ONE WITH THE METAL REINFORCEMENT BETWEEN THE FIRE RINGS OF CYLINDERS 2 & 3.

CAMSHAFTS

These are very much personal choice and also it depends on what sort of use you intend to make of the car. For touring or retro events you could use a "D" type or "K". I haven't any personal experience of a "K" but the "D" type was Volvo rally cam of the early mid 60's and ended up being the production item fitted to the 140 injection car. It gives quite good torque and pulls well from low revs to about 6000. It is clattery as tappet clearance is 17mm. For more go if you feel you want to do some stage events try the "R" type. This is a 3/4 race cam that Volvo developed for the 140 in the seventies for rally use. Although that car had 2 litres & twin Weber 48's. I found it works in the 1800 motor on S.U.'s. Power 2500-6500, very strong from about 3500 to 6500 to poss. 7000 if necessary. Poor idle about 1100 but nevertheless I've used it on all types of events from fun to Retro road events & Special Stages, Tarmac & Loose. With a good cyl head - 11 to 1 Comp. ratio you should get about 150 HP. I used a "D" type on the Monte this year because in snow or ice you would tend to break traction every time it "came on cam". Fit new fibre timing gear kit. There is a brass plate that fits behind the fibre timing gear. If you are using an "R" type cam, I suggest you check the state of that plate every say 12 events as it can wear and break. Steel timing gears are available and I suggest you use them. They are quite expensive. One way of getting them is to find a 164 model in a breakers. They had steel gears as standard. Steel gears are noisy but their strength is worth it. There is a more radical "S" type cam that I don't know anything about other than it is "full race". These cams are not expensive as they are Volvo profiles. Fit new cam followers.
Run in the engine carefully for say 1000 miles, use hard steel washers under the head bolts. Use synthetic oil after it is run in, changed with a Volvo filter after every event. You will find you have a "bomb proof" motor that probably won't use any oil after 40 events with reliability to match. Mobil 1 is best.

Paint motor correct red. You must use 4 into 1 S manifold with 'R' cam.

NGK Plugs BP6HS or BP6S or harder, BP7S or BP7HS.

Exhaust system is again personal choice. As a first step you could fit a cast exhaust manifold with twin downpipes, this manifold is a later item and quite good. Tony Barrett sells them. 2nd hand not expensive. Get from him a 2" Simons complete sports exhaust, this includes the downpipes to & including the rear box and is well made & fits well. The car is homologated with a four branch tubular manifold. Simons do one and this fits their system with an adaptor. For ultimate power a better four branch, going to a 2.5"system is required but you have to make up the system either from proprietary exhaust parts exhaust parts available from ?, or I think it would be easier in the long run to go to a firm like Maniflow to make the system on the car. I think this is if you are looking for the ultimate and I don't know if it is worth it.

ELECTRICS

It is possible to replace the Dynamo with a Lucas 17ACR alternator, there isn't a lot of room but we used this for three years. With a tubular manifold the back of the alternator gets hot and needs shielding.
We have moved on as follows. We replaced the mechanical fuel pump

with electric ones in the boot. We made a blank over the fuel pump orifice on the block and made up a bracket from thick steel plate which bolts on there and comes forward and bolts through the timing cover bolts. If you fit an electric fuel pump, which I recommend, you will need an adjustable pressure regulator to stop it flooding. A heat shield extension is advisable with a four branch exhaust as it tends to evaporate the fuel from the float chambers at stage starts. The electric pumps help as does insulating this fuel line in the engine compartment all the way to the carbs.
Then we got the alternator mounting from a late 120 or 140 & used that to mount an alternator where Volvo did. Vauxhall Astra or Cavalier alternators are modified to fit as they are cheap/plentiful with good output. You can fit 100 watt bulbs etc.
Dynamo problems have to be experienced to be believed.

TRANSMISSION

Fit new clutch. Standard item is quite good and will give you long life but if you have gone for a lot more power or are hard on the clutch, sometimes necessary on Retros with tests etc. You can, by ordering the following, get a very strong unit. A 244 early turbo cover & asbestos free plate for a 120. It must be the early 244 turbo. These parts are listed in the L.U.K. catalogue. A good motor factor or Tony Barrett should be able to get them.
Check the U.J.'s in the propshaft & replace if necessary, these are factor parts. Fit new rubber rubbers to the centre bearing mounting in the body, slide some strong neoprene tube over the pins that locate in these rubbers. Make sure the tube is a tight fit on these pins and that will take out any axle "wind up" or vibration from the propshaft.
The gearbox is strong but age can make them a bit noisy. 2nd Hand they are cheap and plentiful. (Approx. £30 to £40) I get mine overhauled at Bristol t/missions for about £120. They know these boxes well and have some 2nd hand gears in case they are required, also they have bearings in stock which are included in the price I have shown. Bumpy roads can make them fall out of gear, I think this is caused by stiff suspension, hard engine mounts and a long lever.
When building the car I would take the gearbox off, check for excessive wear in the cup that takes the ball of the gear lever although the lever is long the gate should be quite narrow & well defined. If the cup is worn & the gate sloppy look for a good 2nd hand gearbox cover. Fit new balls & springs & also the plate in the cover that stops it selecting 2 gears at once. These do wear eventually & they can break in rare cases & you will not be able to select gears. I have never heard of a gearbox breaking, even when they are noisy.
If someone has fitted a small flywheel damper to the gearbox rear drive flange - throw it away.

Use an axle from a car fitted with overdrive as it is a 4:56 ratio for the cost of an axle from the breakers. There is a 4:88 ratio available from Volvo. This was a motor sport ratio but it is now only available for the M30 later type axle. (Not so, also available M27 axle) Stein Johnsen again I think.
To fit one you would get a 2nd hand late type axle from a breaker & fit the 4.88 ratio, with a few mods it would then fit the early location cars. Ratio homologated, 65 papers.

A L.S.D. is available, unless you can get one from someone who has the correct one for a car of your era, you will need to get the late axle & carry out mods to fit to early location. You can then get a 140 or 240 L.S.D. & fit the side gears to it to accept axle shafts

from the Amazon 120. Best thing would be to speak to Stein Johnsen.

FINALLY

You are probably wondering what power output the engine should give, and it is hard to be very accurate, in our experience, and this does depend on how well the engine has been built. And you may be surprised to know that few decent engine builders are about, whatever you think. With a 2 litre head, 10.5 to 1 compression and a "D" cam, twin outlet exhaust manifold, and 2" system, about 130 bhp at the flywheel. Good torque and should rev out to 6500-7000 rpm. No power after say 6000. With "R" cam, 10.9 comp ratio, extractor manifold about 155 hp at the flywheel and will rev out to 7500. Not much go under 2500 but really goes from 3000 onwards. So there, weight of the car is the drawback.

If you want to do FIA international events you will need to fill the tank with safety foam. I was amazed at how easy this was! You take the tank to a radiator - fuel tank specialist and ask them to cut out a panel in the tank lid. Get a block of foam from ATL Laboratories, cut into blocks & fill the tank. If you leave a piece out the gauge sender can still work. Then take the tank back to the specialists and ask them to solder a panel over the hole. If you cut the foam slightly oversize when fitting it into the tank it fits well and won't move about rendering the gauge inoperative. The foam reduces the tank capacity from 10 gals to 9 ish.

WHEELS

These are not easy to obtain in alloy but I think tin wheels are better. Standard until 1969 were 4" rims. From 1969 and on , on P1800's they were 4.5". I think it is better to give 4" rims to a firm called Motorwheel Services and either have 4.5" or 5.5" outers fitted. Be sure to insist that you have the same inset as the 4" rims that you give them. The car was homologated on 4" - 4.5" - 5.5" rims but the papers do not show the new track measurement. You will measure this with the wheels as I have advised and enter the data on your FIA papers. Because, when Volvo put 4.5" rims on, the extra width was inward and this will mean that Volvo 4.5" & 5.5" rims will foul the 1 1/8th anti roll bar, you will then adjust the lock stops & severely restrict the steering lock to stop this happening. Also brake cooling is affected by the extra 1/2". Use 64 onward ventilated wheels. It is also VERY important to note that although the wheels were Homologated,the new track measurement was not stated, and therefore you cannot increase the track beyond measurements shown in the papers. This matters for International events.

PEOPLE WHO MAY HELP

There are details of people who may be able to help. Volvo dealers can obtain just about any standard part, useful in an emergency. A V.O.R. order should get it by the following day. Not many people realise this and it must be unique for a manufacturer. But who knows for how much longer. The only drawback is cost. So I am listing people who you may find useful for second hand or factor parts. You will also find them helpful.

LIST OF CONTACTS AND PRICE

Stuart Collins Sage wit & raconteur TEL: 0792-655562
FAX: 0792-651126

Tony Barrett Secondhand & new parts. TEL: 0181-741-3300

Stein Johnsen Sweden, Springs and shockers. ONLY!!

FAX: 010-46-21-52290

I.P.D. Oregon, USA.
Front anti roll bar, interesting catalogue of bits & pieces. (12 hrs. behind)
FAX: 0101-503-257-7596

Mike Hixon Looks after my car & will do anything including axle rebuilds, advice also. TEL. 0792-474290

Barry Jones Builds very good Volvo & any other engines, reliable, powerful & reasonable. TEL: 0792-898024

Clipper Mont Townsend original Volvo parts, fair price, good service. (9.00am--8.00pm) every day except Sundays TEL: 0584-711611

Building renovation of "rally" shell--Speak to me.

VOLVO DEALER. Prettys Garage, very good for "classic" parts.
Tel 0379 740681.

PRICES 1990!

ENGINE		
	2 litre head 2nd hand, apprx	£ 50
	D, K or R cam & followers	£ 70
	Volvo yellow code valve springs	£ 40
	Exhaust system 2"	£143
	Timing gear set, not steel	£ 60
	Set pistons	£160
	Bearings	£ 50
	Front & rear converted timing covers.	£ 40
	Oil pump & filter	£ 50
	Clutch	£ 70
	Water pump	£ 30
	Engine mounts, Ford	£ 15
OTHER		
	Road springs, uprated	£140
	Shock abs set, F & R Bilstein or De Carbon	£220
	Set of rear bushes	£ 40
	Discs, each	£ 40
	Calipers exchange, each	£ 75
	Anti roll bar	£100

VOLVO PV 544 SPORT

Reg No	KYB 79C
Date	1965
Mileage	76088 kilometres when purchased
Chassis No	431131
Chassis type	11234F
Colour No	46
Engine Type	B18 D
Engine No	955002 now 90501 now 96379
Engine	Volvo B18D Capacity 1833 cc now 1820cc Compression ratio 10.8 to 1 Rebuilt - 40thou o/size forged pistons crank reground 10 thou o/size - Vandervell/ Clevite bearings - piston/crank/con rods balanced - alloy flywheel - core plugs checked - new H3 camshaft - standard cam followers - rockers refaced - steel timing gear set - modified cylinder head with 43 mm inlet and 36 mm exhaust valves - double valve springs - polished inlet manifold new uprated 3 row heavy duty radiator - new hoses - new thermostat 72 degree - new radiator cap 7psi -new front and rear timing covers - standard sachs clutch oil pressure gauge pipe made up in Goodridge hosing - uprated oil pipe(B20) with uprated spring - harder engine mountings - Kenlowe electric fan plus over-ride switch - oil cooler fitted and seperate remote oil filter assembly (makes changing oil filter much easier)- baffled sump
Carburettors	2 SU HS6 with KN Filters - UNO needles Filter king filter - flexible float chamber mountings - twin Facet competition fuel pumps(1 Gold Top/1 Silver Top) fuel pressure set 3.5 psi 2 x Weber 45 DCOE on Janspeed manifold
Exhaust	Janspeed 4-2-1 exhaust manifold and 2 silencers 2 and half inch system
Gearbox type	Volvo M40 - close ratio straight cut Volvo homologated ratios or standard M40 box
Rear axle	Volvo - ratio 4.88 to 1 incorporating limited slip differential

Suspension	Front- uprated rally springs Twin dampers per side - 2 Bilsteins Koni damper Set up as follows:- toe in 1/8 in - camber 1 degree negative- caster 1 half degrees positive Rear - Bilstein dampers N/S front 65mm O/S front 65.5mm N/S rear 63.5mm O/S rear 64.5mm om colway EMJO tyres and forest springs and forest springs Tarmac springs 1 and half inch lower plus 50% rear plus 25%
Tyres	Tarmac - 175/70 x 15 Maxsport remould tyres single yellow compound Rough Surfaces - Colway Remould Rally Plus 165 x 15 soft compound
Wheels	Steel 4 and 1/2 inch rims
Brakes	Front - Volvo Amazon disc brake Mintex 1144 and 1155 pads- comprising new calipers new discs - reconditioned calipers Rear - Volvo Amazon rear drums- comprising s/hand drums - 7/8in wheel cylinders - new hydraulic pipes - Mintex M20 rear linings New modified master cylinder (BI6) - all new copper pipes - Aeroquip brake hoses
Instruments	Rev counter - water temperature gauge map light - oil pressure light
Safety	Full roll cage - competition front and competition seat belts 1 Lifeline 2.5 kg fire extinguisher and plumbed in AFFF fire extinguisher Fire proofed rear bulkhead Sump and fuel tank guard Windscreeen washer mounted inside car Perspex side and rear windows Alloy fuel tank with gauge
Electrical	Electric fan - Cibie Oscar and Oscar Plus lights Extras Halda Tripmaster
Servicing	Oil change and filter - new plugs and points grease when purchased Oil change and filter + grease every 3000 miles
Jan 1992	Oil change(new engine) - new oil in gearbox new oil in rear axle - front suspension greased - new springs fitted all round - Oil change at 500 miles and new filter - Rolling road tune at Aldon Automotive 500 miles 27/2/92 - 86 bhp at flywheel at 5000 rpm - KD needles - very disappointing - needs larger valves in head - better exhaust system - higher compression ratio

Stein 0046 2152604 (Home)
0046 213 20516 (Work)
Fax 0046 2152290

S.JOHNSEN SWEDEN
HISTORIC MOTORSPORT

93.07.21

COMPETITION PARTS VOLVO B 18 PV 544S---- 122S

ENGINE Appendix K Group 2.		£
Steel camshaft wheels (second hand)		60,00
Camshaft 296 12mm lift		150,00
Petrolpump mechanicel up to 170 B.H.P.		70,00
Single valve spring Set of 8		50,00
Valve retaining cap Set of 8		50,00
Thermostat 76 degrees		15,00
Engine mountings Low and very hard	Set of 2	60,00
Clutch complete Fine or course splines	Bearing included	126,00
Extractor 4-2-1 Homologated		240,00
Extractor 4-2-1		180,00
Forged pistons Set of 4		380,00

SUSPENSION 122 S		
Front anti roll bar	25 mm	85,00
Springs front stage		42,00
Springs rear stage		42,00
Shochabsorber front stage Bilstein		56,00
Shochabsorber rear stage Bilstein		54,00
Shochabsorber front stage De Carbon		45,00
Shochabsorber rear stage De Carbon		43,00

SUSPENSION PV 544		
Safari front suspension		
Consist of 4 mounting bolts offset and 4 Bilstein		413,00
Bilstein works specification front shochabsorber		53,00
Bilstein rear		54,00
Front anti roll bar 20 mm		85,00
Spring front stage		45,00
Spring rear stage		43,00

REAR AXEL M27		
L.S.D Second hand	Adjusted to 15 kg	266,00
4.88 Crown wheel and pinion new (October 93)		375,00
4.88 Crown wheel and pinion second hand		266,00

544-122.XLS

WHEELS

5.5 -15 Minilite copy The only 5.5-15 with correct offset for the 122 Can be used on the PV with a small spacer on front wheels 55,00
V.A.T and freigth in the uk must be added

Overall gearing with M40 and M41 gearboxes with various C.W.P s

Tyre 175-15 70 profile

C.W.P.	R.P.M.	km-h	
4.56	1000	25.93	
4,56	1000	32.50	o.drive
4.88	1000	23.73	
4.88	1000	29.66	o.drive
5.38	1000	21.40	
5.38	1000	26.85	o.drive

PATTERNED TYRE DIMENSIONS

Size	Type	Rim (ins)	lbs/in²	Dia (mm)	Section (mm)	Tread Arc. (mm)	Revs. Per Mile
165 R13	AFR	5	30	588	184	130	871
175 R13				597	200	131	
185/70 R13							
195/70 R13		6	30	602	216	155	851
165 R14		5	30	619	184	127	828
180/70 R14			30	602	201	138	
175 R14	EFR						
190/70 R14							
205/65 R14			30	622	210	148	
155 R15	SFG	5	30	624	168	117	821
175/70 R15							
185/70 R15		5.5	30	624	222	171	821
155 R13	SFR	5	30	572	172	117	896
175/70 R13		5.5	30	572	184	140	896
155 R15		5	30	624	168	117	821
175/70 R15							
205/65 R15		7	30	622	229	184	823
155 – 13	WFR	5	30	590	162	114	868
155/70 – 14		5	30	596	144	114	860
155 – 15		5	30	639	155	111	802
185/60 R13	TURBOSPEED CR28	5.5	30	551	187	133	929
205/60 R13							
185/60 R14		5.5	30	577	187	133	888
185/65 R15		5.5	30	621	187	133	825
205/50 VR15		7	30	586	219	184	875
5.9 S10	WIDE SAFETY GT	4	24	480	147		1115
6.2 S12		4	24	535	157		1000
6.5 S13		4.5	24	610	165		915
7.3 S13							
7.3 S14		5	24	635	188		855
8.15 V15	TURBOSPEED NYLON	6	30	704	211		780
8.90 V15							
195/70 R13	CR SPORT	5.5	28	609	198	146	840
155 R 15 CR6 ZZ		5.0	28	636		4.33" (110)	805.4
175/70 R15 CR6 ZZ		5.0	28	636		5.33" (135)	805.4

A33

5262

AVON

THE PERFORMANCE TYRE – ON TRACK & ROAD

Racing Division . Avon Tyres Limited
Melksham, Wiltshire SN12 8AA England Telephone: Melksham (0225) 703101. Telex: 44142 Fax: (0225) 707443

ALDEN AUTOMOTIVE
BREENER IND EST
STATION DRIVE
OFF BRETTELL LANE
BRIERLEY HILL
WEST MIDLANDS DY5 3JZ

Camshaft installation instructions

Camshaft: 296°/296°/108°/12mm/3.40mm/0.45mm
Enginetype: Volvo B18 4-cyl ohv 1.8L, 84.14mm x 80mm = 1.779cc
Rpm-range: 2.500-7.500 rpm
Peak horsepower rpm expectancy in general engine: 6.500 +/- 250 rpm.
Max rpm: 8.000 rpm. with valvespringpressure as noted!

Intake

Duration: 296° at 0.45mm valveclearance
Running clearance: 0.45mm/hot
Camtiming => Intakevalvelift at TDC (valveclearance as above): 3.40mm
Camlobelift: 8mm
Valvelift at zero clearance: 12mm
Valvespringpressure seat/max lift: 35/90kg

Exhaust

Duration: 296° at 0.45mm clearance
Running clearance: 0.45mm/hot
Camlobelift: 8mm
Valvelift at zero clearance: 12mm
Valvespringpressure seat/maxlift: 35/90kg

Camlobeseparation: 108°

1. All contactareas in valvesystem not oilpressurefed must be covered with a thick coat of Molybdendisulfidpaste.
2. Check that instant oilpressure occurs at start, before the engine is started!
3. Running in: 2.000-2.500 rpm 30-45 min. Change oil & filter. Retorque headgasket. Repeat this after a few metric miles to insure that headgasket is finally compressed. Check camtiming. Now may maximum horsepower be experienced! Ensure that you run correct/ optimal fuel and ignitioncurve over expected rpm-span.
4. Change oil & filter after ca 25-50 metric miles.

OBS: Use only new Volvo genuine valvelifters!
OBS: Dont forget the axialclearance "ring" at cam end!
OBS: Check rockerarm clearance! Min 0.5mm
OBS: All valvesystem parts must be in perfect condition!
OBS: Check that valvespring coilbind not occur!
OBS: Check clearance valveguide vs retainer! Min 1mm
OBS: Check before start that the engine revolves reasonably easy.
OBS: Use recomended oil: Pennzoil 20w50 Racing oil, or when summer/hot condition Pennzoil 30 Racing oil. No synthetics!
OBS: Max camshaft nut torque: 8kgm/80Nm. Use Loctite 290.

When or if in doubt call/fax us!

VOLVO

Volvo Parts AB
Göteborg

Mr G E Hooper, Managing Director
Cabriolet Cars (London) Ltd
Milton House
2A, Fernshaw road
LONDON, SW10 OTF
ENGLAND

Vår referens	Telefon	Datum
32340-TT/eb	031-664257	1989-04-28

Volvo PV 544 - 1965 års modell

Med anledning av Ert brev 1989-04-10 till Pehr Gyllenhammar, vilket vidarebefodrats till mig, skall jag försöka att redogöra för vilka tekniska specialiteter våra fabriksbilar hade på 60-talet.
Jag bifogar kopia på F.I.A.S. (Internationella Bilsportförbundet) klassningshandlingar på PV 544. Bilen var klassad i både grupp I och grupp II.
Because there were no homologated from the factory we have to modify
Eftersom det inte fanns någon trimningssats godkänd till PV:n fick man trimma
originaldelarna i motorn. the original parts.

Motorn är en B18D med dubbla SU förgasare HS6 B18D Mk with twin SU
HS6.
Standard cylindervolym 1789 cc
Borrad motor 1.2 mm, 1833 cc Mk bored out 1.2 mm.
Kompression 10.5
Insugningsventil 40 mm⌀ Inlet Man
Avgasventil 35 mm⌀ Exhaust
Kamaxel märkt C Camshaft Mk
Avgassystem 2" 2" Exhaust.
Effekt ca 115 hk vid 6000 varv 115 bhp @ 6000.
Gearbox
Växellådan har tätstegad utväxling 1:an 3.13, 2:an 1.99, 3:an 1.36 och 4:an 1. Bakaxeln fanns med 3 olika utväxlingar 4.10, 4.56 och 4.88 (standard 4.10).
Brake system. servos disc front
Bromssystem användes samma som till Volvo Amazon, m a o skivor fram, trummor bak. Stötdämpare var av fabikat Bilstein dubbelmontage fram, enkelt bak.
drum back
Shocks double mounted front single back
We even had a protection plate under the motor + box + 3 extra
Vi hade även en skyddsplåt under motor och växellåda, 3 extra ljus framtill (fabrikat Bosch) samt en taksökare som kartläsaren skötte.
dipsts and searchlight on top operated by map reader.

Utrustning invändigt bestod av förarstol (skålformad sportstol) kartläsarstol original. Båda stolarna hade midjebälten. Instrumentering bestod av varvräknare monterad på vänster vindrutestolpe och på kartläsarssidan hade vi en extra vägmätare samt ett tidtagarur.
Interior. Sports seat driver + navigator are original both seats had waist seat belt. Instruments, Rev Counter mounted on left pillar. Nav side extra mileage counter, time counter.

VOLVO

1989-04-28
32340-TT/eb

enklosa photos
Jag bifogar även ett foto på en rallyutrustad PV 544.

Det går bra att kontakta mig om det är något mer Ni vill veta. Samtidigt vill jag önska Lycka Till på rallyt.

Med vänlig hälsning

VOLVO PARTS AB
Affärsområde PV
Produktområde Tillbehör

Tom Trana

cc: Birgit Jönsson, avd 50000, Volvo Personvagnar AB

Bil: foto på rallyutrustad PV 544
kopia på klassningshandlingar

15 OCT. 1965

F.I.A. Recognition N° 5107.
Group 1. - Series Production Touring

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

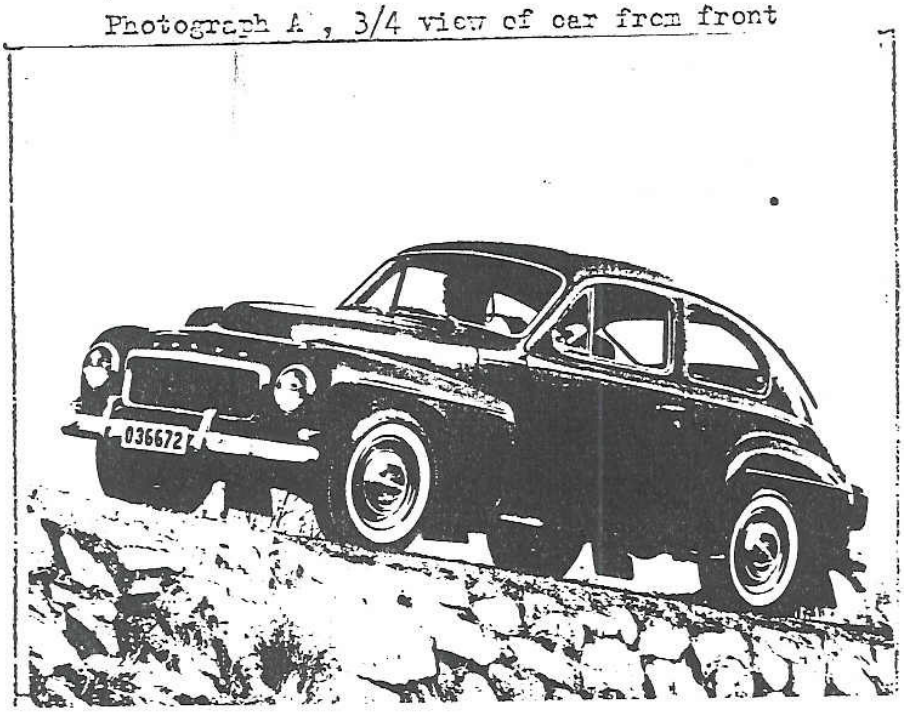
Form of recognition in accordance with
Appendix J to the International Sporting Code.

Manufacturer .AB.VOLVO .....
Serial N° of chassis ..330100.....
engine .496802-101 .....
Recognition is valid from 1st. May 1966. List .IV/4. ... ...

Cylinder-capacity .1778.....cm3 .108.5...in3
Model .....544-112xx.C .....
Manufacturer .AB.VOLVO.....
Manufacturer .AB.VOLVO.....

The manufacturing of the model described in this recognition form was started on .AUGUST...19 61 and the minimum production of 5000..... identical cars, in accordance with the specifications of this form was reached on MAY.....1962.

Photograph A , 3/4 view of car from front



The vehicle described in this form has been subject to the following amendments :

Variants

on .....19 .. rec.N°..... List .....
on .....19 .. rec.N° ..... List .....
on .....19 .. rec.N° ..... List .....
on .....19 .. rec.N° ..... List .....
on .....19 .. rec.N° ..... List .....

Normal evolution of the type

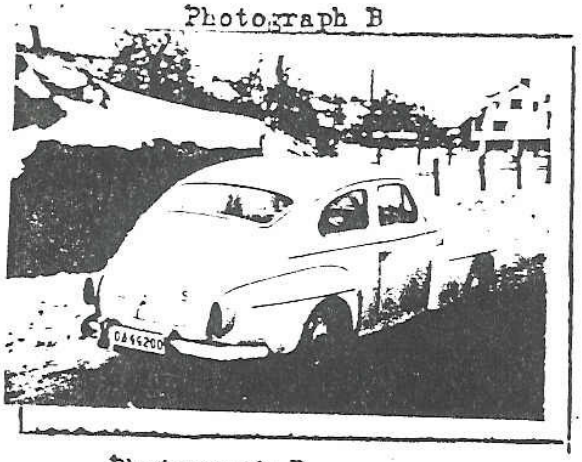
on .....19 .. rec.N° .....List.....
on .....19 .. rec.N° .....List ....
on .....19 .. rec.N° .....List ...
on .....19 .. rec.N° .....List .....
on .....19 .. rec.N° ..... List .....

Stamp and signature of the
National Sporting Authority

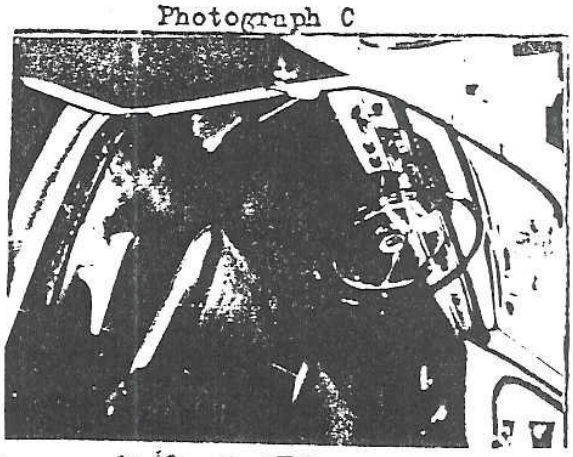
Stamp and signature of the F.I.A.

Page 4

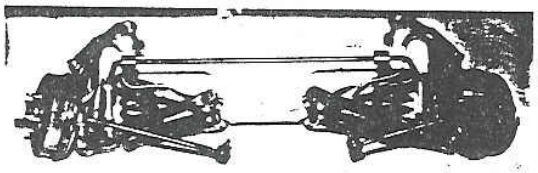
Photograph B



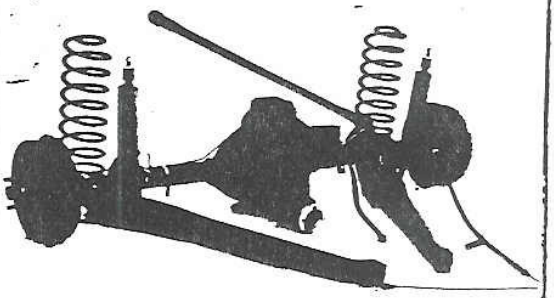
Photograph C



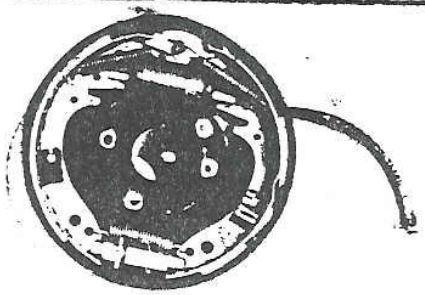
Photograph D



Photograph E

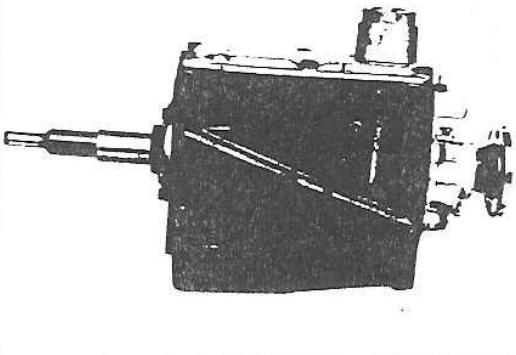


Photograph F

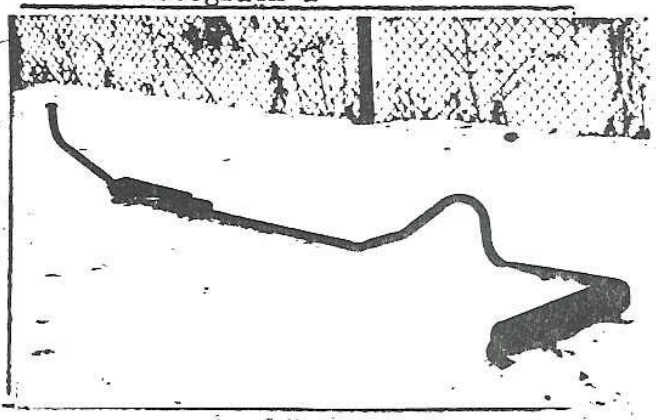


Photograph G

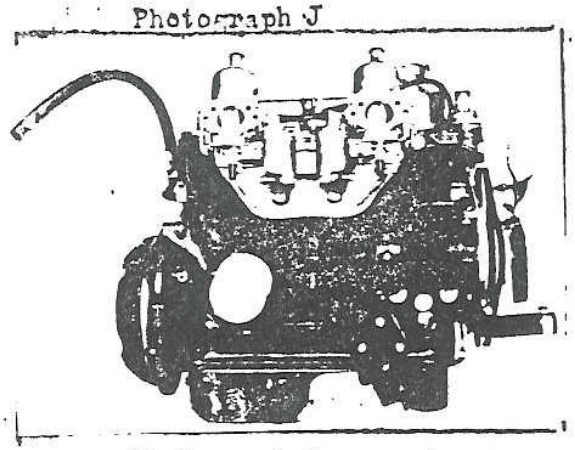
Photograph H



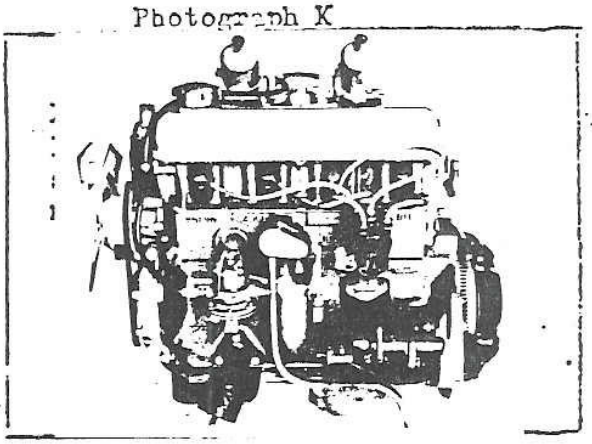
Photograph I



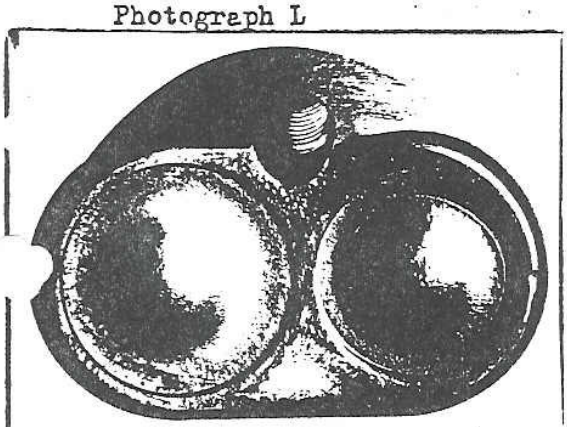
Photograph J



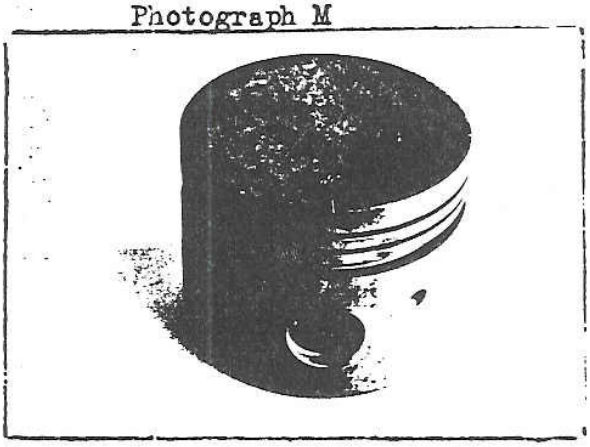
Photograph K



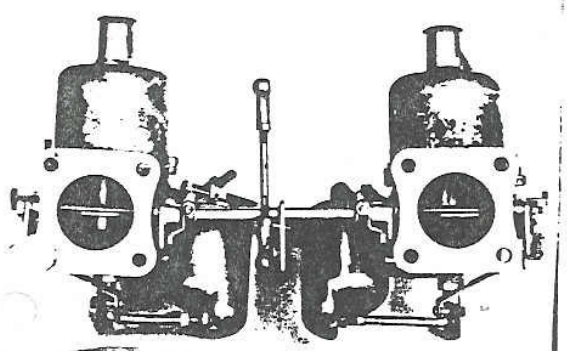
Photograph L



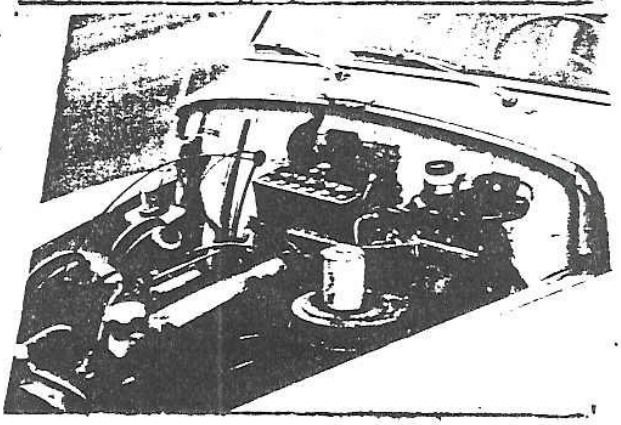
Photograph M



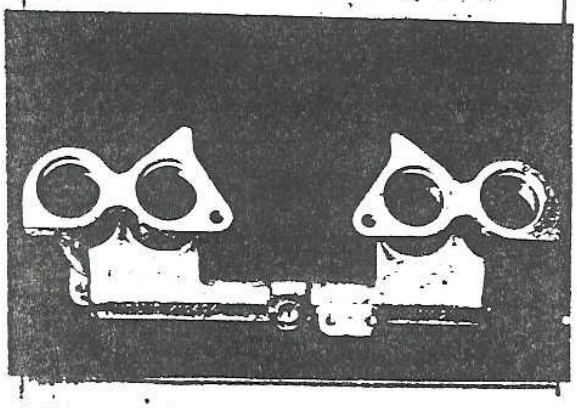
Photograph N



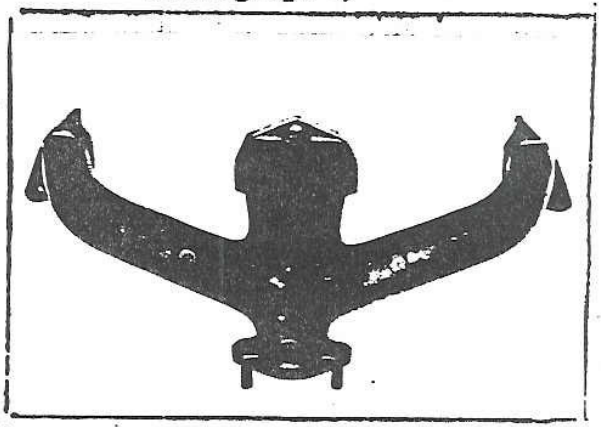
Photograph O



Photograph P

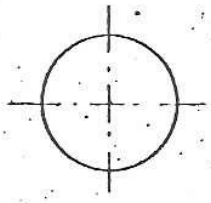


Photograph Q



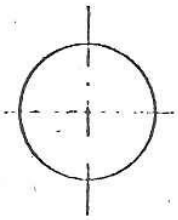
Make | Model | F.I.A. Rec. N°

Drawing inlet manifold ports, side of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



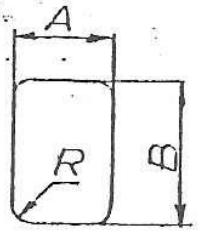
Ø 36 ± 0,31

Drawing of entrance to inlet port of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



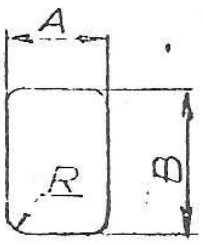
Ø 36 ± 0,31

Drawing exhaust manifold ports, side of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



A = 27 ± 0,8
B = 40 ± 0,8
R = 5 ± 0,8

Drawing of exit to exhaust port of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



A = 25 ± 0,8
B = 38 ± 0,8
R = 4 ± 0,8

IMPORTANT - the underlined items must be stated in two measuring systems, one of which must be the metric system. See conversion table hereafter.

CAPACITIES AND DIMENSIONS

1. Wheelbase	2600	mm	102,4	inches	
2. Front track	1295	mm	51,0	inches *	
3. Rear track	1315	mm	51,8	inches *	
4. Overall length of the car	445	cm			inches
5. Overall width of the car	159	cm			inches
6. Overall height of the car	156	cm			inches

7. Capacity of fuel tank (reserve included) 35 ltrs
9,2 Gallon US 7.7 Gallon Imp.

8. Seating capacityy 4-5

9. Weight , total weight of the car with normal equipment, water, oil and spar wheel but without fuel nor repair tools :

970 kg 2119 lbs 19,0 cwt

*) Differences in track caused by the use of other wheels with different rim widths must be stated when recognition is requested for the wheels concerne Specify ground clearance in relation to the track and give drawing of two easily recognisable points at front and rear at which measurements are take These ground clearance dimensions are only for information when checking th track and can in no way affect the eligibility of the car,

WE, HEREWITH, ALSO REQUEST RECOGNITION OF 4 1/2" WHEELS.
THESE WIDER RIMS DO, IN NO RESPECT, AFFECT THE FRONT OR REAR TRACK OF THE VEHICLE.

CONVERSION TABLE

1 inch/pouce	- 2.54 cm	1 quart US	- 0.9464 lt
1 foot/pied	- 30.4794 cm	1 pint (pt)	- 0.568 lt
1 square inch/pouce carré	- 6.452 cm2	1 gallon Imp.	- 4.546 lt
1 cubic inch/pouce cube	- 16.387 cm3	1 gallon US	- 3.785 lt
1 pound/livre (lb)	- 453.593 gr.	1 hundred weight (cwt)	- 50.802 kg

Make VOLVO Model 544-112xx C F.I.A. Rec. N°

CHASSIS AND COACHWORK (Photographs A, B and C)

20. Chassis/body construction : ~~separate~~ / unitary construction

21. Unitary construction, material(s) STEEL

Separate construction

22. Material(s) of chassis STEEL

23. Material(s) of coachwork STEEL

24. Number of doors 2 Material(s) METAL

25. Material(s) of bonnet METAL

26. Material(s) of boot lid METAL

27. Material(s) of rear-window PLATE GLASS

28. Material(s) of windscreen LAMINATED GLASS

29. Material(s) of front-door windows PLATE GLASS

30. Material(s) of rear-door windows -

31. Sliding system of door windows CRANK-OPERATED

32. Material(s) of rear-quarter light PLATE GLASS

ACCESSORIES AND UPHOLSTERY

38. Interior heating : yes - ~~no~~ 39. Air-conditioning : ~~yes~~ - no

40. Ventilation : yes - no

41. Front seats, type of ~~upholstery~~ seat and upholstery BUCKET, CLOTH AND VINYL

42. Weight of front seat(s), complete with supports and rails, out of the car :

10,3 kg lbs

43. Rear seats, type of ~~upholstery~~ seat and upholstery BENCH, CLOTH AND VINYL

44. Front bumper, material(s) CHROME-PLATED STEEL Weight 4,0 kg 1

45. Rear bumper, material(s) CHROME-PLATED STEEL Weight 4,3 kg 1

WHEELS

50. Type DISC WHEELS

51. Weight (per wheel, without tyre) 6,9 kg lb

52. Method of attachment WITH 5 NUTS

53. Rim diameter	381	mm	15	inches
54. Rim width	101	mm	4	inches

STEERING

60. Type CAM AND ROLLER

61. Servo-assistance : ~~yes~~ - no

62. Number of turns of steering wheel from lock to lock 3,25

63. In case of servo-assistance -

Make VOLVO Model 544-112xx C F.I.A. Rec. N°

SUSPENSION

70. Front suspension (photogr. D), type INDIVIDUAL

71. Type of spring COIL

72. Stabiliser (if fitted) YES

73. Number of shockabsorbers 2 74. Type TELESCOPIC

78. Rear suspension (photogr. E), type RIGID AXLE

79. Type of spring COIL

80. Stabiliser (if fitted) NO

81. Number of shockabsorbers 2 82. Type TELESCOPIC

BRAKES (photographs F and G)

90. Method of operation HYDRAULIC

91. Servo-assistance (if fitted), type -

Number of hydraulic master cylinders 1

	FRONT			REAR		
93. Number of cylinders per wheel	1			1		
94. Bore of wheel cylinder(s)	25,4	mm	in.	20,64	mm	in.
Drum brakes						
95. Inside diameter	228,6	mm	in.	228,6	mm	in.
96. Length of brake linings	165	mm	in.	220	mm	in.
97. Width of brake linings	50,8	mm	in.	50,8	mm	in.
98. Number of shoes per brake	2			2		
99. Total area per brake	796 cm^2	mm2	sq.in.		mm2	sq.in.
Disc brakes						
100. Outside diameter		mm	in.		mm	in.
101. Thickness of disc		mm	in.		mm	in.
.Length of brake linings		mm	in.		mm	in.
103. Width of brake linings		mm	in.		mm	in.
104. Number of pads per brake						
105. Total area per brake		mm2	sq.in.		mm2	sq.in.

Make VOLVO Model 544-112xx C F.I.A. Rec. N°

ENGINE (photographs J and K)

130.Cycle 4-STROKE 131.Number of cylinders 4

132.Cylinder arrangement IN LINE

133.Bore 84,14 mm 3,313 in. 134.Stroke 80 mm 3,15 in.

135.Capacity per cylinder 444,5 cm3 27,04 cu.in.

136.Total cylinder-capacity 1778 cm3 109 cu.in.

137.Material(s) of cylinder block CAST IRON

138.Material(s) of sleeves (if fitted) -

139.Cylinder-head, material(s) CAST-IRON Number fitted 1

140.Number of inlet ports 4 141.Number of exhaust ports 4

142.Compression ratio 8,5:1

143.Volume of one combustion chamber 51,3 cm3 cu.in.

144.Piston, material LIGHT-ALLOY 145.Number of rings 3

146.Distance from gudgeon pin centre line to highest point of piston crown

46 mm inches

147.Crankshaft : ~~moulded~~ / stamped 148.Type of crankshaft : integral/...?...

149.Number of crankshaft main bearings 5

150.Material of bearing cap CAST IRON

151.System of lubrication : ~~dry sump~~ / oil in sump

152.Capacity, lubricant 38 5 ltrs pts quarts US

153.Oil cooler: ~~yes~~/ no 154.Method of engine cooling WATER

155.Capacity of cooling system 8,5 ltrs pints quarts U

156.Cooling fan (if fitted), dia. 33,5 cm inches

157.Number of blades of cooling fan 4

Bearings

158.Crankshaft main, type WHITE METAL Dia. 63,45 mm in.

159.Connecting rod, big end, type COPPER-LEAD-INDIUM Dia. 54,1 mm in.

Weights

160.Flywheel (clean) 9,9 kg lbs

161.Flywheel with clutch (all turning parts) 15,9 kg lbs

162.Crankshaft 16,7 kg lbs 163.Connecting rod 0,68 kg lb

164.Piston with rings and pin 0,588 kg lbs

FOUR STROKE ENGINES

170. Number of camshafts 1 171. Location CYLINDER BLOCK

172. Type of camshaft drive GEARS

173. Type of valve operation PUSH ROD

INLET (see page 4) *

180. Material(s) of inlet manifold ALUMINIUM

181. Diameter of valves 40 mm 1,58 inches

182. Max. valve lift 8,9 mm in. 183. Number of valve springs 1

184. Type of spring COIL 185. Number of valves per cylinder 1

186. Tappet clearance for checking timing (cold) 1,1 mm inches

187. Valves open at (with tolerance for tappet clearance indicated) 10° ATDC

188. Valves close at (with tolerance for tappet clearance indicated) 32° ABDC

189. Air filter, type PAPER

EXHAUST (see page 4)

195. Material(s) of exhaust manifold CAST IRON

196. Diameter of valves 35 mm 1,38 inches

197. Max. valve lift 8,9 mm 0,35 in. 198. Number of valve springs 1

199. Type of spring COIL 200. Number of valves per cylinder 1

201. Tappet clearance for checking timing (cold) 1,1 mm inches

202. Valves open at (with tolerance for tappet clearance indicated) 32° ABDC

203. Valves close at (with tolerance for tappet clearance indicated) 10° ATDC

CARBURETION (photograph N)

210. Number of carburettors fitted 2 211. Type HORIZONTAL

212. Make SU 213. Model HS-6

214. Number of mixture passages per carburettor 1

215. Flange hole diameter of exit port(s) of carburettor 44,5 mm in.

216. Minimum diameter of venturi/minimum diam. with piston at maximum height

mm inches

INJECTION (if fitted) -

220. Make of pump 221. Number of plungers

222. Model or type of pump 223. Total number of injectors

224. Location of injectrrs

225. Minimum diameter of inlet pipe mm inches

---

*) for additional information concerning two-stroke engines and super-charged engines see page 13.

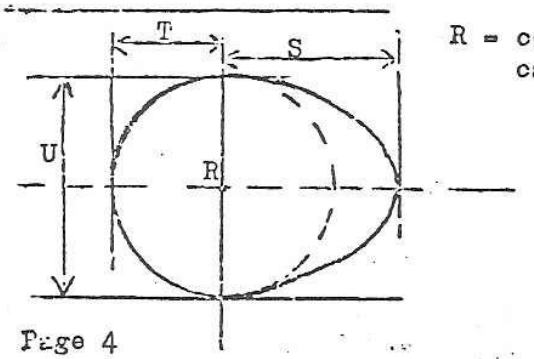
Make Volvo Model 544-112 xx C F.I.A. Rec. N°

ENGINE ACCESSORIES

230. Fuel pump: mechanical
231. N° fitted 1
232. Type of ignition system coil
233. N° of distributors 1
234. N° of ignition coils 1
235. N° of spark plugs per cylinder 1
236. Generator, type: dynamo - number fitted 1
237. Method of drive belt
238. Voltage of generator 12 volts
239. Battery, number 1
240. Location under bonnet centrally-located against fire wall
241. Voltage of battery 12 volts

ENGINE AND CAR PERFORMANCES (as declared by manufacturer in catalogue)

250. Max engine output 90 (type of horsepower: SAE) at 5000 rpm
251. Maximum rpm 5000 output at that figure 90
252. Maximum torque 14.5 kgm at 3500 rpm
253. Maximum speed of the car km/hour miles/hour



R = centre of camshaft.

Inlet cam

S = 21.3 mm inches
T = 15.3 mm inches
U = 30.638mm inches

Exhaust cam

S = 21.3 mm inches
T = 15.3 mm inches
U = 30.638mm inches

Make VOLVO Model 544-1120xx C F.I.A. Rec. N°

DRIVE TRAIN

CLUTCH

260. Type of clutch DRY DISC 261. N° of plates 1

262. Dia. of clutch plates 21,6 cm 8,5 inches

263. Dia. of linings, inside 13,9 cm in. outside cm in.

264. Method of operating clutch MECHANICAL

GEAR BOX (photograph H)

270. Manual type, make VOLVO M 40 Method of operation SHIFT STICK

271. N° of gear-box ratios forward 4 272. Synchronized forward ratios 4

273. Location of gear-shift CENTRE FLOOR LEVER

274. Automatic, make type

275. N° of forward ratios 276. Location of gear-shift

277.	Manual		Automatic		Alternative manual/automatic			
	Ratio	N° teeth	Ratio	N° teeth	Ratio	N° teeth	Ratio	N° teeth
1	3,13	33:15						
2	1,99	28:20						
3	1,36	22:23						
4	1							
5								
6	3,25							
reverse								

278. Overdrive, type

279. Forward gears on which overdrive can be selected

280. Overdrive ratio

FINAL DRIVE

290. Type of final drive HYPOID

291. Type of differential RIGID AXLE

292. Type of limited slip differential (if fitted) [redacted]

293. Final drive ratio 4,1:1

Number of teeth 41:10

FEDERATION INTERNATIONALE DE L'AUTOMOBILE
8, place de la Concorde. PARIS (8e)
Tél: ANJOU 54-70

(1)

FICHE D'HOMOLOGATION "NOUVEAU MODELE" N°: 1086

établie le: d'après dossier présenté par le Constructeur le:

MARQUE: VOLVO

TYPE: P 544-112xx C

GENRE:

DENOMINATION GENERALE: P 544-110

DENOMINATION COMMERCIALE: Volvo 544 Sport

CARROSSERIES LIVREES CONCUREMMENT DANS LA SERIE DU TYPE:

Sedan à deux portes

NOMBRE DE PLACES: 5

ANNEE: 1961 MOIS: Aout
DE DEBUT DE FABRICATION:
D'ABANDON DEFINITIF DE FABRICATION:

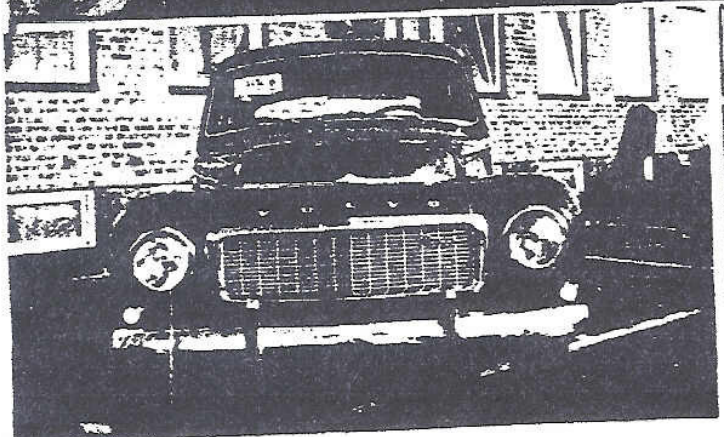
N° DANS LA SERIE DU TYPE: 330100-
INAUGURANT LE TYPE: P 544-112xx C
N° MOTEUR CORRESPONDANT: B18D-xxxxx

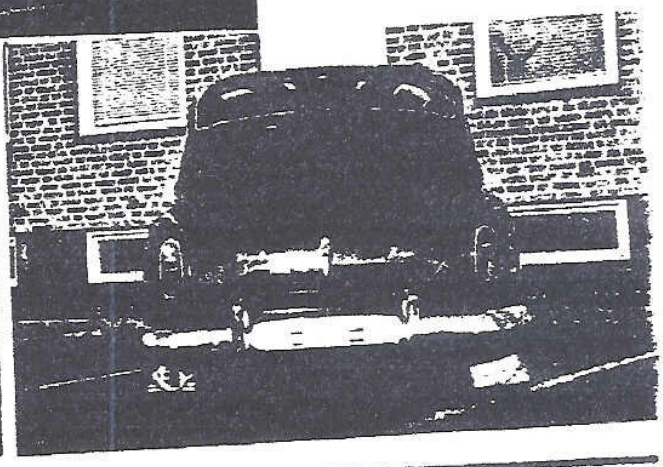
VENICULE HOMOLOGUE DANS LA CATEGORIE: Tourisme

PAR LA F.I.A. le: 5-12-61 LISTE: Additif 2 à la feuille 9

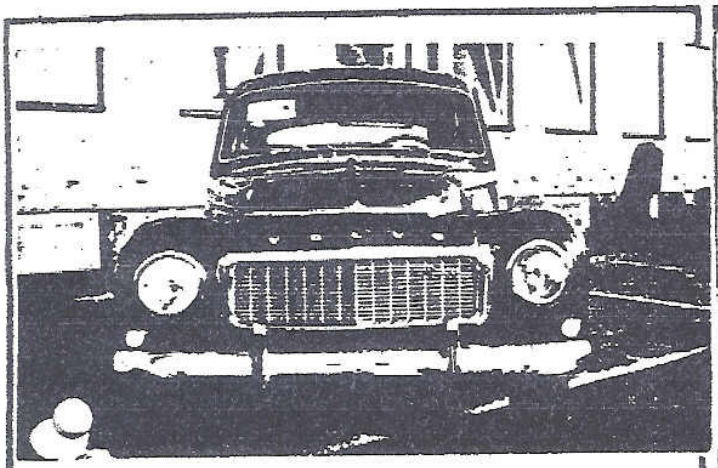
SIGNATURE ET CACHET F.I.A.

PHOTOGRAPHIES DU VÉHICULE (EXTERIEUR: de face, de profil, AR.)

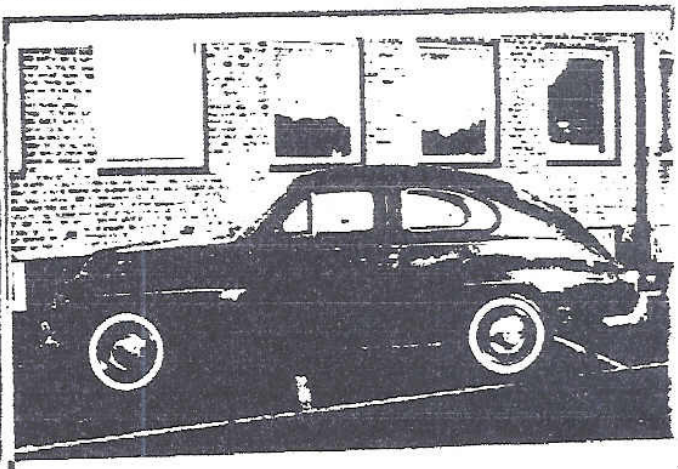




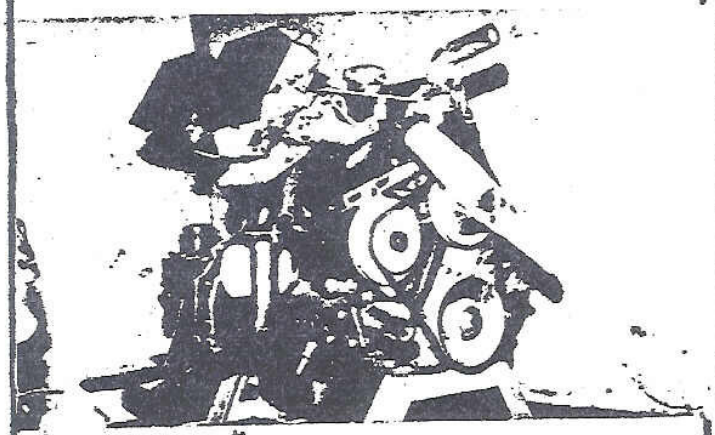
DOCUMENTS PHOTOGRAPHIQUES DES DETAILS



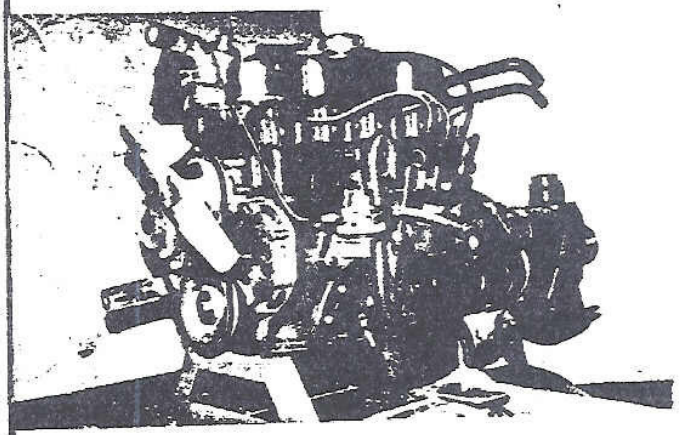
VUE DE FACE DU VEHICULE 1



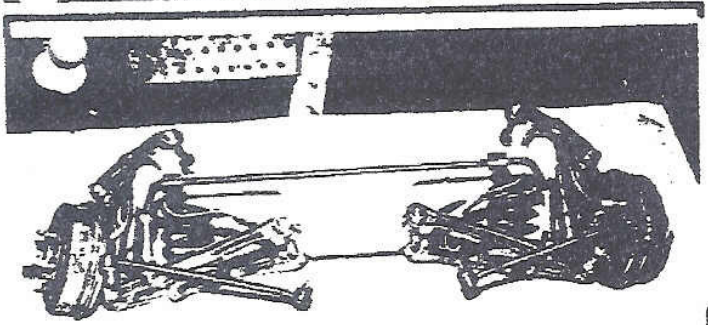
VUE DE PROFIL DU VEHICULE 2



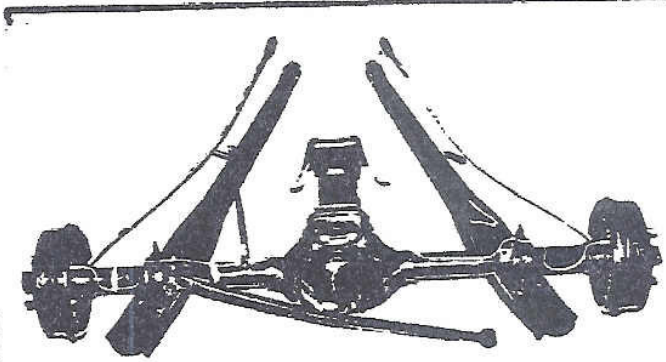
VUE DU MOTEUR, PROFIL DROIT 3



VUE DU MOTEUR, PROFIL GAUCHE 4



TRAIN AV. VU DE DESSUS 5



TRAIN AR. VU DE DOS. NU 6

F.I.A.	FICHE D'HOMOLOGATION N°	MARQUE: VOLVO	TYPE: P 544-112xx	3

CARROSSERIES LIVREES CONCURREMMENT DANS LE TYPE: Sedan

MATERIAU PRINCIPAL: Acier

MATERIAUX ANNEXES:

NOMBRE DE PLACES ADMIS PAR LES POUVOIRS PUBLICS (FRANCE: CARTE GRISE): 5

DIMENSIONS HORS TOUT: LARGEUR: 1590 m/m
LONGUEUR: 4450 m/m
HAUTEUR, EN CHARGE: m/m. GARDE AU SOL: m/m.
HAUTEUR, A VIDE: 1560 m/m. GARDE AU SOL: 200 m/m.

POIDS (Moyenne de la pesée effective de 5 véhicules de la série, dans la carrosserie considérée. sans carburant, avec plein huile et eau (s'il y a lieu), avec 1 roue de rechange garnie de pneumatique, sans conducteur, ni passagers, ni outillage, ni bagages.

970 kg

EMPATTEMENT: 2600 m/m. VOIE AV. 1295 m/m. VOIE AR. 1315 m/m.

PROPULSION: POSITION MOTEUR: AV. TRANSMISSION AUX ROUES: AR.

TRANSMISSION: 4 vitesses à l'avant, entièrement synchr., et une à l'arrière

DIRECTION: GENRE: Vis et galet

MOTEURS A 4 TEMPS ET, POUR AUTRES MOTEURS A 2 TEMPS

CYCLE: 4 temps SOURCE D'ENERGIE: Essence

TYPE (CONCEPTION)

PUISSANCE DECLAREE (en CV français, FRANCE, puissance fiscale): 90 CV SAE

REGIME MAXIMUM: t/m. PUISSANCE A CE REGIME: CV. Français.

PUISSANCE MAXIMUM DU MOTEUR: 90 CV SAE CV. français, à 5000 t/m.

NOMBRE DE CYLINDRES: 4 DISPOSITION DES CYLINDRES: en ligne

ALESAGE: 84,14 m/m. TOLERANCE D'USINAGE: ± 0,25 mm

COURSE: 80 m/m. TOLERANCE D'USINAGE: ± 0,1 mm

CYLINDREE GEOMETRIQUE DE BASE: PAR CYLINDRE: 444,5 CC. TOTALE: 1778 cc.

CYLINDREE CALCULEE AU MAXIMUM DES TOLERANCES MAXIMA D'USINAGE, APPLIQUEES A TOUS LES CYLINDRES: 1789 cc. COTES D'ALESAGE REPARATION: 0,02"-0,03"-0,04"-0,05"

CYLINDREE CALCULEE D'APRES CES COTES REPARATIONS: DE BASE: 1800 cc.

AU MAXIMUM DES TOLERANCES D'USINAGE APPLIQUEES A CES COTES: 1833

VOLUME DE LA CHAMBRE D'EXPLOSION: 51 cc.

HAUTEUR AU CENTRE DE LA CHAMBRE D'EXPLOSION: 14 m/m

HAUTEUR TOTALE BLOC-MOTEUR, NON COMPRIS CULASSE ET CARTER D'HUILE: 297,5 m/m.

HAUTEUR DE LA CULASSE, HORS TOUT (DIMENSION EXTERIEURE): 88 m/m.

POIDS UNITAIRE DES ELEMENTS: VOLANT: 11,5 kg. VILEBREQUIN: 16,5 kg.

BIELLE COMPLETE: 0,68 kg. PISTON: NU: 0,42 kg. AVEC SEGMENTATION: 0,47 kg.

PALIERS DE VILEBREQUIN: NOMBRE: 5 GENRE:

COUSSINETS DE VILEBREQUIN: NOMBRE: 4 GENRE:

COUSSINETS DE BIELLE: NOMBRE: 4 GENRE:

JEU A FROID DES SOUPAPES: ADMISSION: 0,4-45 m/m. ECHAPPEMENT: 0,40-45 m/m.

AVANCE A L'ADMISSION, jeu à froid inclus: 2,2 m/m. à 0,45

AVANCE A L'ECHAPPEMENT, jeu à froid inclus: 2,2 m/m. à 0,45

Ø SOUPAPES: ADMISSION: 40 m/m. ECHAPPEMENT: 35 m/m.

F.I.A.	FICHE D'HOMOLOGATION N°:	MARQUE: VOLVO	TYPE: P 544-112xx	4

MOTEURS A 4 TEMPS

POINTS DE REPERE: (PHOTOGRAPHIES OU SCHEMAS).

MOTEURS A 2 TEMPS

LUMIERE ADMISSION HAUTEUR: m/m. LARGEUR: m/m.
LUMIERE ECHAPPEMENT HAUTEUR: m/m. LARGEUR: m/m.
TRANSFERT HAUTEUR: m/m. LARGEUR: m/m.
AUTRES DETAILS ALIMENTATION:

MOTEURS A 4 TEMPS ET A 2 TEMPS

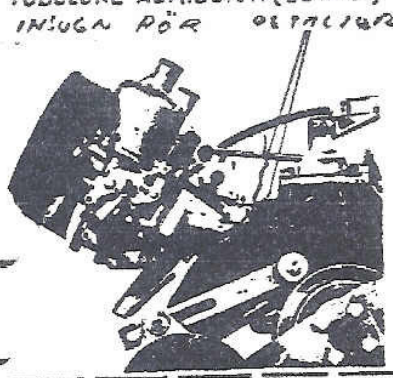
TUBULURE ADMISSION: Ø EXTERIEUR: m/m. Ø INTERIEUR: 47 m/m. (max. comme min. 2x33 mm)
ETAT: Métal leger

TUBULURE ECHAPPEMMENT: Ø EXTERIEUR: m/m. Ø INTERIEUR: 45 m/m.
ETAT: Fonte

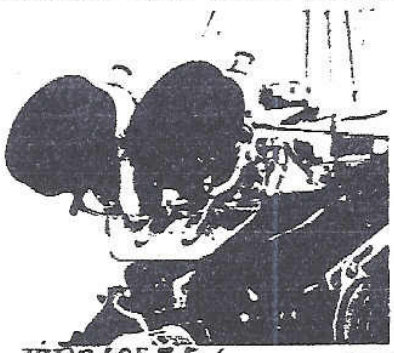
DISPOSITIF SILENCIEUX: TYPE: Volvo
NIVEAU SONORE: 87 db

PHOTOGRAPHIES

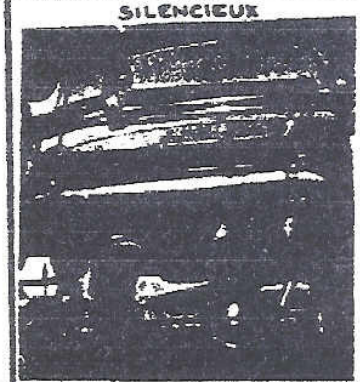
TUBULURE ADMISSION (DETAILS)



TUBULURE ECHAPPEMENT (DETAIL)



SILENCIEUX



CES VUES SONT PRISES A L'ARRIVEE OU AU DEPART SUR LA CULASSE

VUE DU POT D'ECHAPPEMENT

RESSORTS DE SOUPAPES: INTERIEUR: NOMBRE: 8 Ø INTERIEUR: 18,5-0,2 m/m. Ø EXTERIEUR 26,5 m/m
LONGUEUR: 46 m/m. NOMBRE DE SPIRES: 7
EXTERIEUR: NOMBRE: Ø INTERIEUR: m/m. Ø EXTERIEUR m/m
LONGUEUR: m/m. NOMBRE DE SPIRES:

CARBURATEUR: GENRE: Deux, horizontaux MARQUE: S U TYPE: HS-6
Ø TUBULURE GAZ, A LA SORTIE DU CARBURATEUR: 47 m/m.

INJECTION DIRECTE: POMPE: MARQUE: TYPE:
INJECTEURS: MARQUE: TYPE:
BOUGIES INCANDESCENTES: MARQUE: TYPE:
POMPE D'ALIMENTATION: MARQUE: TYPE:

MODE D'ALIMENTATION EN CARBURANT, A PARTIR DU RESERVOIR DE CARBURANT:

Pompe mécanique A C

F.I.A	FICHE D'HOMOLOGATION N°:	MARQUE: VOLVO	TYPE: P 544-112xx	5

EMBRAYAGE : TYPE: Monodisque, sec
CARACTERISTIQUES ET COTES. Diamètre: 216 mm, comme equipment supplementaire
203 mm

RAPPORTS DE DEMULTIPLICATION BOITE DE VITESSES ET PONT-MOTEUR.

DEMULTIPLICATEUR(S)(S'IL Y A LIEU):		Rapport à 1:						
		Nombre de dents	19:27					
BOITE DE VITESSES:	1° VITESSE.	Rapport à 1:	3,13					
		Nombre de dents	33:15					
	2° VITESSE.	Rapport à 1:	1,99					
		Nombre de dents	28:20					
	3° VITESSE.	Rapport à 1:	1,36					
		Nombre de dents	22:23					
	4° VITESSE.	Rapport à 1:	1					
		Nombre de dents						
	5° VITESSE.	Rapport à 1:						
		Nombre de dents						
	MARCHE AR.	Rapport à 1:	3,25					
		Nombre de dents	32:14	19				

AUTRES DISPOSITIFS
DE LA BOITE DE VITESSES
ET OBSERVATIONS:

Blocage de differentiel "Powr-Lok" équipement supplementaire

PONT-MOTEUR:	Rapport à 1:	4,1	4,56				
	Nombre de dents:	41:10	41:9				

RAPPORT TOTAL DE DEMULTIPLICATION AUX ROUES MOTRICES : à calculer en fonction des rapports de démultiplication démultiplicateur(s), s'il y a lieu, Boite de vitesses, Pont-moteur, choisis respectivement par les utilisateurs. 12,83-8,16-5,58-4,1

ROUES : TYPE: Acier emboutMARQUE: POIDS UNITAIRE(ROUE NUE): 7 kg.
:S : TYPE: MARQUE: DIMENSIONS : 4J ou 41/2Jx15"

PNEUMATIQUES : TYPE: DIMENSIONS : AV.: 5,90-15, 165-15 AR.: 5,90-15, 165-15
165-380 165-380
PRESSION NORMALE DE GONFLAGE (Véhicule à son poids en charge): AV.: AR.:

FREINS: PRINCIPAL: TYPE: Hydrauliques, Wagner Electric SECONDAIRE: TYPE: Mécaniques sur roues AR.

(Dans le cas de freins ~~hydrauliques~~ à tambours): NOMBRE DE POMPES: 1

Ø des Tambours intérieur AV.: 229 m/m. AR.: 229 m/m.

extérieur AV.: m/m. AR.: m/m.

Longueur des garnitures: AV.: m/m. AR.: m/m.

Largeur des garnitures : AV.: m/m. AR.: m/m.

Surface des garnitures: AV. 451 cm^2 AR.: 451 cm^2

Type de garnitures :

(Dans le cas des freins à disques): NOMBRE DE POMPES:

Ø des Disques: AV.: m/m. AR.: m/m.

Longueur des sabots: AV.: m/m. AR.: m/m.

Largeur des sabots: AV.: m/m. AR.: m/m.

F.I.A.	FICHE D'HOMOLOGATION N°	MARQUE: VOLVO	TYPE: P 544-112xx	6

OBSERVATIONS PARTICULIERES RELATIVES AU FREINAGE:

CAPACITES DES RESERVOIRS ET CARTERS	EN LITRES				
OBSERVATIONS					
	CARBURANT	35	70 +)		
filtre inclus	HUILE MOTEUR	3,75			
	BOITE DE VITESSES	0,75			
	PONT. MOTEUR	1,3			

+) equipement supplementaire

RE[illegible]IDISSEMENT: TYPE: Eau SYSTEME DE CIRCULATION: Pompe et thermostat

(dans le cas par liquide), CAPACITE DU CIRCUIT TOTAL, Y COMPRIS CHAMBRES): 7,5 litres.

TYPE DE LA SUSPENSION AV.: Indépendante avec hélicoïdaux et bras de commande. Stabilisateur

AR.: Ressorts hélicoïdaux, bras supports, barres de torsion et barre stabilisatrice (panhard)

(Dans le cas de barres de torsion): Longueur AV.: m/m. AR.: m/m.
Ø AV.: m/m. AR.: m/m.

(Dans le cas de ressorts à lames): Nombre de lames: AV.: AR.:
épaisseur totale du ressort au centre : AV.: m/m. AR.: m/m.
largeur de la lame maitresse : AV.: m/m. AR.: m/m.
largeur de la contre-lame : AV.: m/m. AR.: m/m.

(Dans le cas de ressorts hélicoïdaux) Ø extérieur : AV.: m/m. AR.: m/m.
Ø intérieur : AV.: 82,3-45 m/m. AR.: 102-104 m/m.
Nombre de spires : AV.: 8 AR.: 9
Ø du fil ressort : AV.: 13,5-7 m/m. AR.: 11,7-11,9 m/m.

AMORTISSEURS NOMBRE: AV: 2 +) AR.: 2
PRINCIPE DE FONCTIONNEMENT AV.:) AR.:) Hydrauliques, téléscopicus à double effe

OBSERVATIONS PARTICULIERES RELATIVES A LA SUSPENSION:

+) Equipement supplementaire: Suspension AV. renforcée, avec ressorts auxiliare de gomme et deux amortisseurs à chaque coté

F.I.A	FICHE D'HOMOLOGATION N°:	MARQUE: VOLVO	TYPE: P 544-112	7

GENERATRICE DE Bosch TENSION: 12 volts REGULATEUR: Bosch RS/VA 240/12/2

COURANT: Directe DEBIT amp./H: 360 W (30 A) à t/m.: 2500

BATTERIE ACCUMULATEURS: TENSION: 12 V CAPACITE: 60 Ah

CONDENSATEURS: TYPE:

BOBINE (S): NOMBRE: 1 TYPE: ZS/KZ 1/12 A (14/3)

ALLUMEUR: TYPE: Bosch VJU 4 BL 33 DISPOSITIF D'AVANCE: Vacuum et centrifugal

COTES DE CALAGE: 0,4-0,5 mm

AUTRE SYSTEME D'ALLUMAGE QUE TYPE "BATTERIE" (DESCRIPTION)

BOUGIES: TYPE: Bosch W 175 T 1 DIAMETRE DU CULOT: 14 mm PAS DU CULOT:
ou correspondantes
NOMBRE PAR CYLINDRE:

FILTRE A HUILE: TYPE: A passage total

FILTRE A AIR; TYPE: Sec, avec element de papier

RADIATEUR D'HUILE: TYPE: Echangeur de temperature eau-huile comme équipment supplementaire

AUTRES EQUIPEMENTS MONTES EN SERIE (MARQUES ET PARTICULARITES)

COMPTEUR TACHYMETRE: VDO

COMPTE-TOURS:

THERMOMETRE EAU: VDO

THERMOMETRE HUILE:

JAUGE:

CLIMATISATION:

PROJECTEURS REGLEMENTAIRES:

PROJECTEURS DE COMPLEMENT:

INDICATEURS DE DIRECTION:

ECLAIRAGE AR.:

ECLAIRAGE INTERIEUR:

MONTRE:

DIVERS NON PREVUS DANS LA LISTE CI-DESSUS:

F.I.A.	FICHE D'HOMOLOGATION N°:	MARQUE: VOLVO	TYPE: P 544-1[illegible]	8

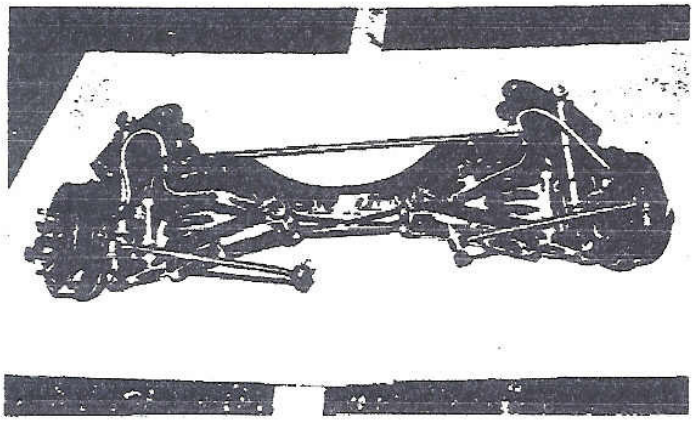
LE VEHICULE DECRIT PAR CETTE FICHE D'HOMOLOGATION *NOUVEAU MODELE*
HOMOLOGUE PAR LA F.I.A. le: SOUS LE N°:
A FAIT L'OBJET DE:

EXTENSION D'HOMOLOGATION (VARIANTE):	le:	sous le n°:
	le:	sous le n°:
	le:	sous le n°:
	le:	sous le n°:
	le:	sous le n°:
EXTENSION D'HOMOLOGATION (MODIFICATION DE CONSTRUCTION)	le:	sous le n°:
	le:	sous le n°:
	le:	sous le n°:
	le:	sous le n°:
	le:	sous le n°:

OBSERVATIONS COMPLEMENTAIRES, N'AYANT PU TROUVER PLACE DANS LE CORPS DE LA FICHE D'HOMOLOGATION:

Les chambres d'explosion sont entièrement usinées comme standard

Equipement supplementaire: Plaques de protection, une AV. et une AR.



DELIVRÉ PAR LA ~~F.I.A.~~ CERTIFIÉ CONFORME LE:
Le Directeur de la ~~F.F.S.A.~~ KAK

KUNGL AUTOMOBIL KLUBBEN
Tävlingssekretariatet

26/11 1961

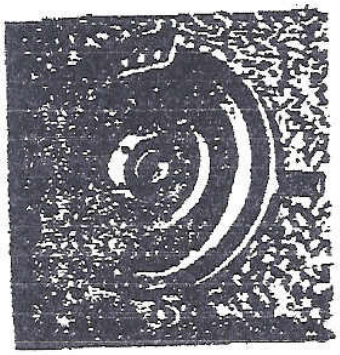
KUNGL AUTOMOBIL KLUBBEN

Form of Recognition (Normal development of original vehicle type)
Identifieringskort (Normal utveckling av vagnstypen)

No. / Nr ___ — ___ ___ Make / Märke Volvo Type / Typ 544 sport

Photographic documentation
Fotografier

Oil cooler (See below) / Oljekylare (Se nedan) } 418490



FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Stockholm den 24/1 1962
KUNGL AUTOMOBIL KLUBBEN

F.I.A. Recognition No.
F.I.A. Identifieringskort Nr.

KUNGL AUTOMOBIL KLUBBEN
THE ROYAL SWEDISH AUTOMOBILE CLUB

Form of Recognition (normal development of original vehicle type)
Identifieringskort (normal utveckling av vagnstypen)

valid from — upon documentation delivered by the manufacturer
giltande fr. o. m. — på grundval av från tillverkaren lämnade uppgifter

Make / Märke: Volvo

Previously recognized type, to which this extension refers / Tidigare klassad typ, till vilken denna utökning hänföres: P 544-112xxC

Date when the first vehicles in this stage of development were manufactured / Tillverkningsdatum för de första fordonen av denna vidareutveckling: August 1961

Serial No. of the type inaugurating this extension / Nummerserie för denna utvecklade typ: P 544-112xxC

The / Modellen: 1964 — recognized in Category / klassad i kategori: T

by the F.I.A. on the / av FIA den: 3 [illegible] 1964 — List / Lista: 10 — as a normal / som normal

development of the original vehicle type.
utveckling av vagnstypen

Stamp and signature of the F.I.A.
FIA:s signatur och stämpel

DESCRIPTION OF MODIFICATIONS HAVING LED TO THIS RECOGNITION
BESKRIVNING AV DE ÄNDRINGAR, SOM LETT TILL DENNA KLASSNING

Cylinder head / Cylinderlock	418413
Camshaft / Kamaxel	418266
Crankshaft main bearings of copper-lead / Vevarellager av blybrons	418223 6 st 418229 2 st

F.I.A. Recognition No. / FIA Identifieringskort Nr 1021/D

KUNGL AUTOMOBIL KLUBBEN

THE ROYAL SWEDISH AUTOMOBILE CLUB

Form of Recognition (normal development of original vehicle type)

Identifieringskort (normal utveckling av vagnstypen)

upon documentation delivered by the manufacturer.
på grundval av från tillverkaren lämnade uppgifter.

valid from
gällande fr. o. m.

Make
Märke Volvo

Previously recognized type, to which this extension refers
Tidigare klassad typ, till vilken denna utökning hänföres PV 544 - 112 x x C

Date when the first vehicles in this stage of development were manufactured
Tillverkningsdatum för de första fordonen av denna vidareutveckling

Serial No. of the type inaugurating this extension
Nummerserie för denna utvecklade typ 330100 -1, -2, -3, ...

The
Modellen PV 544 - 112 x x C recognized in Category / klassad i kategori T

by the F.I.A. on the
av FIA den 5.12.1961 list / liste lisit additionnelle to à journal 9. as a normal / som normal

development of the original vehicle type.
utveckling av vagnstypen

9 mai 1963

Stamp and signature of the F.I.A.
FIA:s signatur och stämpel

DESCRIPTION OF MODIFICATIONS HAVING LED TO THIS RECOGNITION
BESKRIVNING AV DE ÄNDRINGAR, SOM LETT TILL DENNA KLASSNING

Cylinder-head 418413 replaced by 418868
Cylinderlock ersättes av

Compression ratio / Kompressionsförhållande } 10,0

Height at centre of combustion chamber / Höjd i mitten av förbränningsrum

Volume of one combustion chamber / Volym av ett förbränningsrum } 43,8

Camshaft 418266 replaced by 418707
Kamaxel ersättes av

	Inlet/Inlopp	Exhaust/Utlopp
Valves open / Ventiler öppnar	37°	79°
Valves close / Ventiler stänger	79°	37°
Maximum lift / Max. lyfthöjd	220°	220°
3/4 maximum lift / 3/4 max. lyfthöjd	164°	164°

F.I.A. Recognition No.
FIA Identifieringskort Nr

13

KUNGL AUTOMOBIL KLUBBEN
THE ROYAL SWEDISH AUTOMOBILE CLUB

Form of Recognition (normal development of original vehicle type)
Identifieringskort (normal utveckling av vagnstypen)

valid from
gällande fr. o. m. _____ upon documentation delivered by the manufacturer.
på grundval av från tillverkaren lämnade uppgifter.

Make / Märke: VOLVO

Previously recognized type, to which this extension refers / Tidigare klassad typ, till vilken denna utökning hänföres: 544 - 112 xxc

Date when the first vehicles in this stage of development were manufactured / Tillverkningsdatum för de första fordonen av denna vidareutveckling: _____

Serial No. of the type inaugurating this extension / Nummerserie för denna utvecklade typ: 330100 - 1-2-3 . . . .

The / Modellen: 544 - 112 xxc recognized in Category / klassad i kategori: T

by the F.I.A. on the / av FIA den: 5 - 12 - 1961 List / Lista: 9/24 as a normal / som normal

development of the original vehicle type.
utveckling av vagnstypen

4/11/12

Stamp and signature of the F.I.A.
FIAs signatur och stämpel

DESCRIPTION OF MODIFICATIONS HAVING LED TO THIS RECOGNITION
BESKRIVNING AV DE ÄNDRINGAR, SOM LETT TILL DENNA KLASSNING

Disc-brakes with hubs Bromsskiva med nav	666525	2 st
Left hand side front caliper assembly Framhjulsbroms, vänster	668992	
Right hand side front caliper assembly Framhjulsbroms, höger	668993	
Left hand side rear caliper assembly Bakhjulsbroms, vänster	669021	
Right hand side rear caliper assembly Bakhjulsbroms, höger	669022	

Brakesystem is standard equipment on Volvo 122 (2 and 4 doors) and an optional extra on Volvo 544 - 112 xxc

Bromssystemet är original på Volvo 122 (2 och 4 dörrars) samt saluföres som extrautrustning till Volvo 544 - 112 xxc

KUNGL AUTOMOBIL KLUBBEN

Form of Recognition (Normal development of original vehicle type)
Identifieringskort (Normal utveckling av vagnstypen)

No. / Nr ____ Make / Märke Volvo Type / Typ PV 544-112 x x C

Photographic documentation
Fotografier

Alternative Ratios / Alternativa utväxlingar

	Ratio / Utväxl.	No. of teeth / Antal tuggar
1	2,62	33:15
2	1,67	28:20
3	1,24	23:22
4	1	
Primary gears / Primärväxel		21:25
Rev. / Back	2,72	

Final drive ratio / Utväxling slutväxel } 4,88 No. of teeth / Antal tuggar } 39:8

Clutch / Koppling } 418638 replaced by / ersättes av } 418930

Stockholm den 11/4 1963
KUNGL AUTOMOBIL KLUBBEN

KUNGL AUTOMOBIL KLUBBEN

Form of Recognition (Normal development of original vehicle type)
Identifieringsskort (Normal utveckling av vagnstyper)

No. / Nr _____ Make / Märke VOLVO Type / Typ 544-112-xxo

Photographic documentation
Fotografier

Stockholm den 5/2 1963
KUNGL AUTOMOBIL KLUBBEN