



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

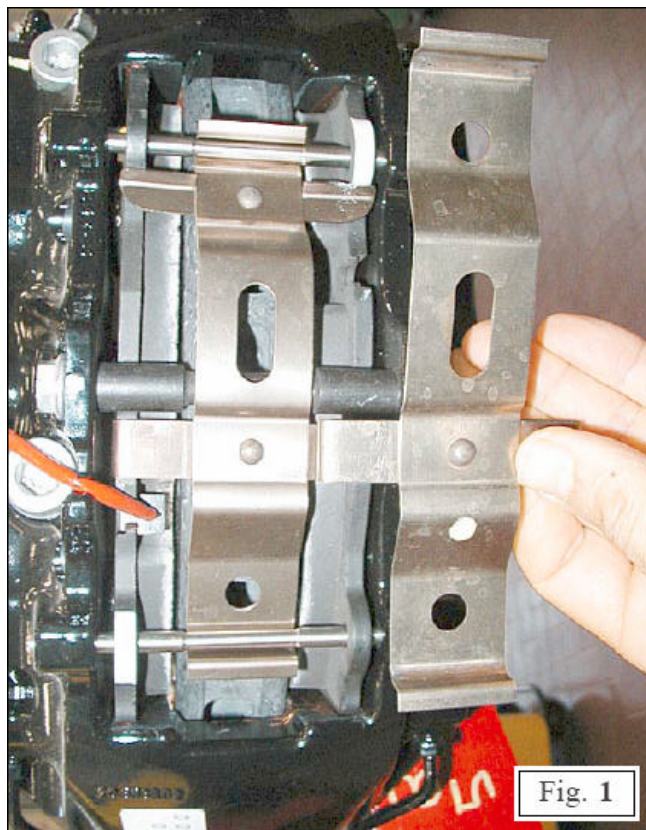
Area	Model	Bulletin n°	Date	Pages
4	<i>Challenger Stradale</i>	1210	June 2004	1

SUBJECT: Retaining clip for brake pads

This bulletin is to inform you that the brake pad retaining clips shown below have been modified in order to help improve the noise dampening characteristics on the pads inside the brake callipers.

Fig. 1 shows the difference between the clips. The new clip is mounted on the calliper while the old version is shown next to it on the right.

The new clip is part of the **“Complete Front Pads with Spring”** kit, **Part No. 70000976** and was introduced into production as of **Assembly No. 50894**. Our Parts Department will only supply the kits provided with the new retaining clips for the brake pads.





**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	All 8 Cylinder models	1215	May 2004	1

SUBJECT: Timing belt for 8-cylinder engines

For your information, all 8-cylinder Ferrari models, independent of the Model Year, must have the timing belts replaced every **30,000 miles or every 3 years**, whichever comes first.

For information on Timing Belts for 12-cylinder engines, refer to Technical Information Bulletin number 1003 dated October 2002.



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION BULLETIN

Area	Model	Bulletin n°	Date	Pages
8	All 360 Versions/Models	1218	July 2004	9

Subject: Bosch Motronic Electronic Control Unit (ECU) - Service Campaign 103

This technical information bulletin addresses erroneous Malfunction Indicator Light (MIL) "ON" cases in certain 360 U.S versions vehicles. The particular Bosch Motronic ECU was fitted in the 360 vehicle Model Year 2002 with the following part numbers:

- Part No. 186394 - Mechanical gearbox version,
- Part No. 190768 - F1 gearbox Version

A fix has been implemented by introducing of a new software package which monitors the Secondary air system efficiency starting with the Model Year 2003 version. The ECUs with the upgraded software have the following part numbers:

- Part No. **197914** - Mechanical gearbox version
- Part No. **197913** - F1 gearbox Version.

Note: The new ECUs are interchangeable with Model Year 2002 version ECUs. However, the new ECUs are **not** interchangeable with Model Year 2001 or earlier ECUs. To ensure an operational system with no erroneous signals, all Model Year 2002 vehicles and the early Model Year 2003 vehicles by re-flashing the Bosch Motronic ECU'S (see attached list for vehicles involved).



The necessary software programs are on Modis listed under “SD2 software download” in the 360 Modena section. (This particular software is the same for Modena and Spider).

The software to be downloaded is:

F1 gearbox version - INST0167_10200.exe
Manual gearbox version – INST0169_10000.exe

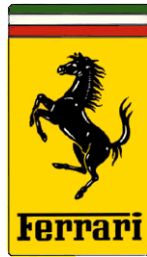
Warranty Submission procedures for R/S:

• Cost Code.....	23
• Campaign Number	103
• Malfunction Code	810001
• Problem Code.....	01
• Operation Code	8100019
• Time	0.5 hrs.

Warranty Submission procedures for L/S:

• Cost Code.....	23
• Campaign Number	103
• Malfunction Code	810002
• Problem Code.....	01
• Operation Code	8100029
• Time	0.5 hrs.

We would like to remind you that it is extremely important that every upgraded ECU is marked with a special sticker as shown in the photo (Fig. 1). Place the new sticker on top of the existing sticker. In addition to the ECU stickers that must be attached to each ECU, we will also send a sticker which must be placed in the center of the engine compartment cover as shown in Fig.2. Make sure to print your Dealer code and the repair date on the engine compartment sticker. You will be sent enough stickers to complete 10 cars, if additional stickers are required, please contact the Warranty dept. at 201-816-2659.



ECU Sticker for F1



ECU Sticker for 6 Speed



Fig.2
Engine Compartment Sticker



Description of Emission Related Component: On-Board Diagnostic system for Secondary Air Injection system monitor.

Description of Repairs: The OBD II system can inappropriately and randomly detect a malfunction of the secondary air injection system which results in a corresponding fault code stored in the ECU memory which will cause the MIL to illuminate. In order to solve this problem, we are providing the necessary updated software for the specific secondary air injection system diagnostics. Two checks per driving cycle are always carried out (only if certain conditions are encountered). This re-flash of the ECUs avoids a false detection in the secondary air system.

The OBD II system works as designed by detecting all faults. This software upgrade addresses the parameter used to correct the cause of the false MILs. All vehicles comply with all applicable emissions standards

Telaio n° <i>Chassis no.</i>	Assembly n. <i>Assembly no.</i>
127194	44333
128977	46124
130164	47216
128859	45991
127456	44618
129927	46968



Telaio n° Chassis no.	Assembly n. Assembly no.	Telaio n° Chassis no.	Assembly n. Assembly no.	Telaio n° Chassis no.	Assembly n. Assembly no.
125627	44059	127201	44321	127490	44659
125628	44062	127208	44382	127514	44607
125640	44078	127243	44359	127519	44637
125641	44080	127246	44302	127520	44652
125642	44084	127255	44322	127529	44683
125643	44086	127260	44371	127530	44646
125644	44088	127267	44390	127542	44684
125716	44093	127295	44451	127547	44700
125717	44095	127298	44450	127553	44643
125718	44097	127301	44392	127561	44718
125719	44104	127302	44397	127569	44719
125720	44106	127303	44404	127575	44757
127067	44178	127304	44405	127618	44739
127068	44204	127305	44419	127630	44789
127073	44214	127306	44385	127631	44773
127074	44218	127307	44421	127641	44813
127077	44223	127308	44401	127642	44808
127078	44240	127309	44435	127644	44590
127083	44235	127310	44436	127645	44623
127086	44256	127311	44438	127647	44656
127087	44252	127312	44383	127649	44721
127095	44277	127314	44543	127651	44705
127102	44114	127344	44455	127654	44781
127103	44131	127351	44460	127655	44724
127107	44159	127352	44491	127659	44798
127108	44153	127366	44497	127665	44804
127111	44183	127367	44502	127666	44796
127155	44190	127376	44516	127671	44811
127159	44201	127382	44527	127680	44861
127161	44213	127383	44530	127711	44846
127165	44234	127415	44466	127727	44891
127170	44267	127427	44574	127741	44857
127171	44282	127428	44542	127748	44859
127174	44265	127431	44560	127754	44866
127175	44294	127434	44570	127761	44869
127176	44295	127435	44572	127762	44956
127181	44300	127442	44606	127798	44966
127182	44306	127454	44604	127804	44957
127183	44313	127455	44584	127807	44989
127189	44324	127472	44529	127810	45012
127191	44326	127484	44608	127818	44894



Telaio n° Chassis no.	Assembly n. Assembly no.	Telaio n° Chassis no.	Assembly n. Assembly no.	Telaio n° Chassis no.	Assembly n. Assembly no.
127833	44920	128086	45225	128320	45581
127842	44930	128088	45231	128321	45591
127843	44946	128089	45247	128349	45431
127852	44972	128091	45249	128350	45409
127853	44928	128114	45268	128351	45542
127856	44953	128128	45362	128352	45434
127869	45030	128130	45322	128356	45485
127873	45072	128135	45340	128357	45495
127877	45043	128143	45271	128360	45491
127886	44988	128144	45266	128361	45505
127887	44995	128145	45325	128363	45556
127892	44996	128151	45265	128365	45492
127893	44999	128152	45270	128379	45547
127899	45089	128153	45295	128380	45539
127901	45029	128160	45312	128385	45627
127909	45063	128161	45289	128391	45666
127910	45032	128163	45307	128392	45573
127939	45092	128170	45412	128402	45558
127950	45187	128172	45321	128403	45572
127951	45160	128177	45333	128407	45574
127957	45049	128179	45389	128409	45630
127965	45071	128180	45328	128420	45600
127968	45074	128217	45354	128428	45615
127969	45093	128221	45374	128429	45619
127970	45091	128225	45388	128439	45647
127981	45095	128236	45411	128440	45593
127982	45098	128240	45359	128493	45637
127983	45099	128242	45353	128561	45664
127991	45119	128249	45356	128564	45683
128006	45143	128250	45365	128565	45672
128007	45154	128258	45386	128566	45685
128008	45172	128260	45392	128567	45698
128026	45200	128266	45467	128568	45701
128032	45230	128267	45394	128569	45703
128040	45244	128268	45404	128571	45717
128077	45155	128274	45396	128572	45734
128078	45173	128275	45406	128573	45949
128079	45174	128276	45446	128576	45737
128081	45201	128277	45448	128578	45763
128083	45186	128278	45471	128580	45773
128084	45212	128302	45447	128581	45794



Telaio n° Chassis no.	Assembly n. Assembly no.	Telaio n° Chassis no.	Assembly n. Assembly no.	Telaio n° Chassis no.	Assembly n. Assembly no.
128582	45756	128966	46076	129236	46339
128583	45795	128969	46084	129238	46383
128586	45700	128971	46134	129240	46407
128588	45704	128973	46096	129242	46404
128600	45742	128976	46108	129246	46408
128612	45814	128981	46105	129247	46433
128615	45793	128991	46102	129248	46510
128627	45828	128998	46106	129249	46461
128629	45830	129001	46097	129250	46462
128637	45851	129002	46141	129251	46481
128649	45960	129006	46144	129256	46514
128718	45865	129007	46148	129260	46518
128724	45869	129012	46170	129265	46529
128725	45945	129017	46166	129266	46542
128731	45867	129019	46181	129267	46543
128732	45853	129027	46161	129271	46277
128733	45892	129029	46186	129275	46245
128740	45888	129038	46206	129276	46255
128748	45893	129039	46208	129281	46263
128750	45919	129040	46216	129284	46273
128751	45927	129042	46167	129289	46301
128765	45939	129043	46200	129290	46310
128817	45906	129045	46224	129291	46314
128826	45903	129094	46188	129295	46333
128829	45938	129099	46203	129299	46344
128834	45961	129108	46225	129300	46354
128843	45959	129114	46240	129332	46365
128850	45967	129119	46243	129337	46369
128852	45983	129121	46246	129339	46422
128857	45964	129128	46262	129344	46393
128858	46013	129130	46280	129345	46396
128867	46008	129139	46332	129352	46418
128868	46009	129140	46294	129354	46434
128873	46020	129141	46295	129355	46437
128875	46059	129147	46335	129357	46441
128883	46038	129149	46327	129361	46459
128885	46055	129155	46337	129362	46471
128917	46006	129161	46386	129366	46482
128918	46033	129162	46313	129367	46690
128923	46014	129163	46382	129372	46485
128964	46045	129164	46356	129373	46513



Telaio n° <i>Chassis no.</i>	Assembly n. <i>Assembly no.</i>	Telaio n° <i>Chassis no.</i>	Assembly n. <i>Assembly no.</i>	Telaio n° <i>Chassis no.</i>	Assembly n. <i>Assembly no.</i>
129374	46517	129733	46771	129931	46998
129376	46532	129734	46791	129932	46994
129378	46521	129735	46803	129933	46999
129383	46525	129738	46862	129934	47002
129415	46547	129739	46832	129935	47017
129416	46565	129741	46827	129936	47021
129423	46589	129742	46848	129938	47004
129425	46597	129746	46874	129939	47015
129426	46619	129748	46861	129941	47036
129427	46614	129749	46893	129942	47034
129429	46642	129751	46878	129945	74039
129430	46628	129753	46880	129946	47032
129513	46560	129754	46894	129947	47040
129514	46549	129756	46884	129949	47057
129518	46572	129757	46896	129954	47052
129529	46609	129758	46915	129955	47060
129534	46618	129759	46918	129956	47071
129541	46646	129771	46822	129960	47063
129550	46668	129775	46826	129961	47076
129558	46774	129776	46844	129962	47090
129559	46688	129781	46903	129969	47094
129567	46692	129784	46864	129973	47109
129568	46705	129790	46898	130013	47168
129569	46700	129791	46901	130015	47098
129577	46753	129792	46919	130017	47099
129578	46703	129793	47016	130023	47127
129586	46629	129797	46922	130024	47131
129587	46647	129799	46939	130026	47135
129591	46666	129800	46941	130032	47138
129592	46675	129852	47018	130033	47148
129602	46746	129873	46925	130034	47149
129612	46768	129874	46944	130039	47157
129613	46757	129875	46936	130133	47261
129619	46772	129876	46952	130134	47227
129633	47601	129880	46949	130139	47328
129634	46798	129884	46983	130143	47170
129727	46724	129895	46980	130144	47173
129728	46790	129910	47126	130145	47174
129729	46758	129916	47073	130146	47167
129730	46747	129928	46977	130149	47175
129732	46773	129930	46996	130150	47184



Telaio n° <i>Chassis no.</i>	Assembly n. <i>Assembly no.</i>	Telaio n° <i>Chassis no.</i>	Assembly n. <i>Assembly no.</i>	Telaio n° <i>Chassis no.</i>	Assembly n. <i>Assembly no.</i>
130151	47185	130341	47397	130470	47478
130152	47189	130342	47381	130471	47502
130153	47192	130344	47415	130472	47487
130160	47206	130345	47435	130474	47506
130161	47193	130346	47439	130475	47532
130162	47196	130347	47442	130476	47499
130163	47210	130348	47471	130477	47530
130165	47224	130349	47467	130478	47551
130166	47225	130350	47475	130479	47545
130169	47232	130351	47490	130480	47584
130177	47233	130378	47380	130481	47547
130178	47243	130380	47384	130482	47586
130179	47246	130381	47386	130517	47582
130180	47248	130382	47400	130518	47554
130243	47363	130385	47387	130519	47607
130245	47290	130386	47404	130520	47611
130246	47282	130389	47525	130521	47613
130247	47320	130390	47418	130523	47628
130248	47299	130391	47434	130524	47631
130249	47339	130392	47438	130525	47648
130251	47305	130393	47526	130526	47626
130252	47310	130394	47449	130527	47664
130254	47321	130395	47441	130563	47555
130255	47323	130440	47524	130564	47573
130256	47324	130442	47548	130565	47643
130257	47326	130443	47507	130566	47587
130258	47308	130444	47550	130567	47592
130259	47349	130446	47534	130569	47608
130260	47343	130447	47536	130571	47590
130261	47327	130448	47572		
130262	47341	130449	47552		
130263	47344	130466	47451		
130264	47347	130467	47470		
130265	47375	130468	47474		
130268	47355	130469	47472		



FERRARI NORTH AMERICA, INC. TECHNICAL SERVICE DEPARTMENT

TECHNICAL INFORMATION BULLETIN

Area	Model	Bulletin n°	Date	Pages
9	360 Modena/360 Spider/Challenge Stradale	1222	March 2003	9

Subject: Replacement of Becker Radio with Pro-CD 6140 Radio

This technical information bulletin is a follow up to the **Technical Service Bulletin No. 1196** that was released on **October 2003** which explained the loss of the loudness functions of the radios supplied by Becker. Based on the information that we gathered regarding this defect, we have decided in conjunction with our supplier Becker to upgrade all the vehicles that are equipped with these radios. The fleet of vehicles concerned by this upgrades starts with **Assembly No. 51527** and end with by including **Assembly No. 52453**.

For this service campaign upgrade, our supplier Becker will provide us with the new radio unit which is identified by **the new Ferrari Part No. 208376**. Please notice that the part number is only valid for this campaign. The radio will be ship and suitably packed in the original "Shock Proof" packaging. The radios will not have the front panel, but it will include the Code Card for activation purpose.

Intervention Procedures

- When replacing the radio, follow the instructions given in the stereo's manual and please remember to furnish the new unit with the original front panel.

Servicing Rules



- Our Spare Parts Department will automatically send you the correspondent units as soon as possible. You will receive 80% of the required units in order to upgrade the fleet of vehicles. However, if the total number of involved vehicles is less than 10 for any given dealers, 100% of the units will be shipped together.
- The replaced units must be returned to Ferrari, Italy by using the same “Shock Proof” package that came with the original unit. The second-hand radio must also be ship with the old code card. If applicable, please remind the customer in advance to return the old code card.
- Please make sure that the original instruction manual must be kept with the unit.
- When filling the warranty claim, it is essential to specify the new radio code in order to keep our vehicle data files as accurate as possible. This is a must.

Failure to comply with the last three rules listed above will result in the rejection of your warranty claim. No exceptions.

- Any vehicles listed in **our previous Technical Information Bulletin No. 1196** for which the required information has not been supplied, it will not undergo the upgrade referenced in the bulletin.

The costs incurred for this intervention must be recovered via our **Warranty System**:

• Cost Code.....	23
• Service Campaign Number	117
• Malfunction Code	31.9.50.044
• Defect Code	01
• Operation Code	9.50.044.9
• Time Allowance	0.3 hrs.

The upgrade envisaged in this technical information must be completed by, and no later than, July 31st, 2004.

FERRARI NORTH AMERICA, INC.



TECHNICAL INFORMATION BULLETIN No. 1222

Service Campaign No. 117

<u>Chassis No.</u>	<u>Assembly No.</u>
134399	51527
134406	51530
134462	51556
134470	51558
134478	51564
134540	51579
134542	51604
134543	51612
134544	51610
134547	51622
134553	51643
134554	51645
134609	51660
134610	51792
134621	51691
134625	51705
34626	51720
134634	51818
134639	51765
134640	51770
134672	51867
134675	51865
134718	51989
134725	51802
134726	51806
134731	51939
134741	51979
134806	51945
134807	51830
134811	51852
134812	51917



134818	52010
134819	51897
134828	52034
134835	52086
134836	51920
134839	52113
134840	51962
134847	52154
134848	51995
134964	52214
134965	52175
134971	52230
134972	52039
134973	52066
134981	52059
134982	52061
134985	52302
134986	52133
135061	52104
135068	52147
135078	52339
135086	52167
135087	52415
135091	52211
135092	52234
135211	52242
135214	52257
135215	52255
135218	52279
135223	52322
135226	52361
135299	52394
135371	52452
134463	51619
134362	51535
134397	51569
134548	51636



134604	51777
134860	51968
134987	52050
135062	52118
135067	52120
135079	52126
135285	52425
134536	51709
134556	51688
134679	52068
135280	52422
135284	52429
134410	51543
134427	51523
134436	51624
134437	51549
134446	51575
134454	51583
134486	51621
134494	51646
134503	51668
134510	51676
134564	51697
134582	51725
134583	51727
134606	51748
134671	51803
134673	51773
134674	51788
134677	51808
134680	51809
134681	51817
134684	51820
134685	51828
134686	51831
134746	51837
134747	51853



134753	51863
134754	51866
134765	51871
134766	51880
134770	51891
134771	51898
134781	51924
134782	51918
134783	51940
134857	51944
134858	51947
134868	51959
134869	51963
134875	51981
134876	51987
134885	51994
134886	52001
134893	52011
134894	52009
134895	52018
134999	52090
135005	52040
135006	52042
135010	52056
135011	52060
135019	52083
135020	52087
135029	52093
135030	52114
135038	52143
135039	52148
135045	52165
135046	52169
135054	52205
135055	52212
135098	52215
135099	52226



135110	52228
135111	52233
135116	52240
135117	52248
135118	52256
135119	52259
135124	52274
135125	52280
135126	52281
135133	52283
135134	52303
135230	52306
135231	52311
135232	52325
135239	52343
135249	52348
135250	52358
135255	52368
135256	52374
135309	52362
135310	52372
135314	52391
135316	52395
135321	52409
135322	52411
135328	52417
135329	52451
135330	52456
135331	52458
134435	51542
134445	51555
134453	51565
134484	51577
134485	51609
134493	51627
134501	51630
134502	51658



134509	51661
134559	51671
134563	51692
134571	51717
134579	51740
134605	51771
134678	51766
134682	51819
134683	51916
134748	51839
134755	51857
134756	51862
134772	51874
134784	51900
134859	51946
134870	51967
134877	51971
134896	51998
135012	52035
135021	52054
135047	52108
135053	52140
135097	52150
135109	52171
135132	52243
135238	52250
135248	52275
135303	52291
135304	52320
135307	52347
135308	52344
135313	52393
135320	52402
135333	52453



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	All 360 Models	1232	June 2004	8

SUBJECT: Timing Variator and Tensioner Replacement - Service Campaign 97

This campaign involves all 360 models with engine numbers below **60796 only** (vin range; 114015 to 123399).

During a timing belt service, both exhaust timing variators must be replaced with updated versions, part numbers:190042. A later style timing belt tensioner (part number:192920) and securing bolts (part numbers:205693 and 185234) on the 5-8 cylinder bank must also be installed.

The later style parts along with 1.5 hours of labor will be charged to Warranty (not to the customer) using the submission information provided at the end of this bulletin.

Note: If a timing belt service was already performed within the last 2 years or 20,000 miles and the later style variators and belt tensioner were not installed at that time, the later parts must be installed, the timing belt can be reused and the procedure in the attached bulletin followed.

The later style parts along with the required 4.7 hours of labor will be charged to Warranty (not to the customer) according to the submission information provided at the end of this bulletin.

Always check with ModisCs to ensure the vehicle being worked on is included in this campaign. Also refer to Technical Information bulletin number 1215, dated May 2004 for timing belt replacement intervals.



Vehicles that have already undergone a timing belt service and the timing variators were replaced with the two later parts (Part no. **190042**) and were tightened following the instructions provided (non-lubricated thread and tightening torque to **160 Nm**), must not be serviced.

Please make sure that any 360 that had the new variators and tensioner installed, a "VD" mark is punched properly onto the cylinder head. See photo on page 7 of this bulletin.

Note: The new torque specification for the variators is non-lubricated threads and tightening torque to **160 Nm**. (previous spec. was 200Nm).



Preliminary procedures

- Connect the SD2 diagnosis system for reading the timing angle for the banks, RH / LH exhaust camshafts: from 652 bit Min to 6,72 bit Max, with the engine idling.
- Battery master switch to OFF.
- Remove the engine inspection lid, as described in the Service Manual, Section **M 3.05**.

Removal

- Remove the belt-tensioner bearing for the alternator control belt.
- Using a 90° special wrench (size 19) (ref. **USAG 285 - L ø 19 mm** - Fig. 1), loosen the lower screw on the tensioner for the alternator control belt's pulley.



- Remove the belt tensioner pulley, then take out the alternator control pulley.
- Release the fastener for the water recirculation pump pipe.
- Remove the timing belt protective guards, taking care that the spacers do not fall on the car underfloor.

N.B.: place some protections on the exhaust manifolds to prevent components or tools from falling onto the car underfloor.

Operations on the LH bank

- Disassemble the rear head cover and remove the relative gasket.
- Rotate the crankshaft until it reaches the TDC, aligning the reference marks on the exhaust and intake pulley with those on the head cover (Fig. 2).





- Also check that the reference marks on the caps and on the exhaust and intake camshafts are correctly aligned; draw new reference marks with a felt-tip pen if necessary (Fig. 3).
- Thoroughly clean the contact surface on the rear head gasket using a spatula.

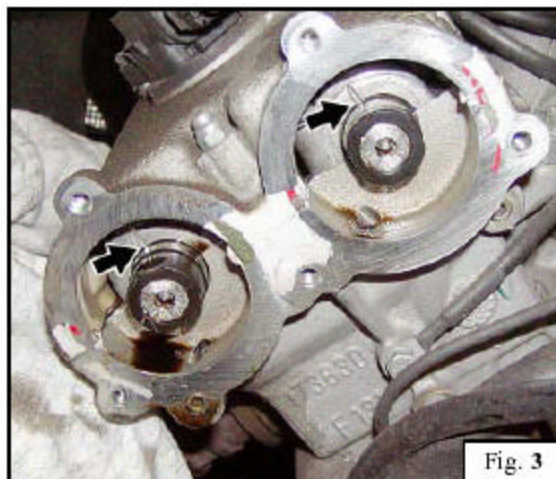


Fig. 3

- Mount the support plate **AV 3422** (Fig. 4) for tool **AV 3417**, securing it onto the stud bolts for the rear head cover, using no. 3 Kylock $\varnothing 6$ nuts.

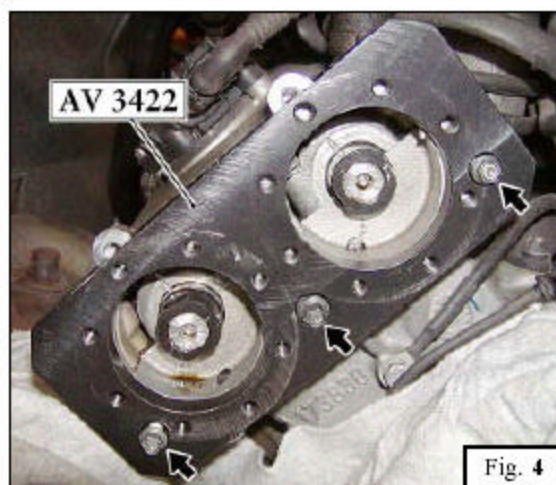


Fig. 4

- Lock the hydraulic tensioner's pin to keep the timing belt stopped (Fig. 5). To do this, fit the special stop into the tensioner body hole, after having aligned it with the hole on the small piston inside the tensioner.

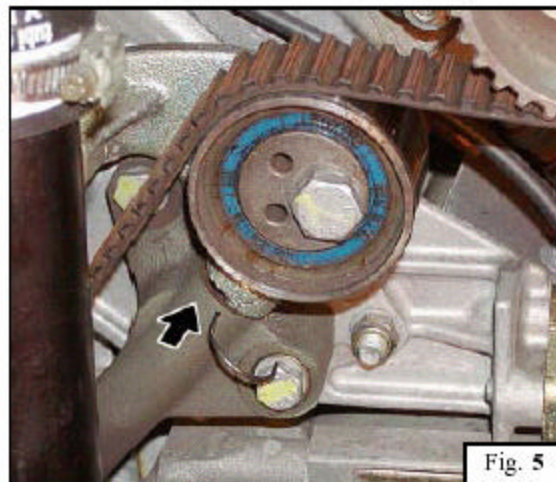


Fig. 5



- Using a felt-tip pen, draw some position reference marks between the exhaust and intake pulleys, and between the pulleys and the timing belt.
- Lock the belt onto the timing control pulley and onto the intake pulley using two self-locking and adjustable pliers, fitting a rubber protection between the pliers and the belt.



Fig. 6

- When the end-of-travel has almost been reached, loosen the 8 nuts on the flange of tool **AV 3420**. Position the tool on the support plate **AV 3422**, in the exhaust camshaft hole, with the unloaded slot in position with the outer stud bolt for the rear head cover (Fig. 7).
- Using a rubber hammer, fit tool **AV 3420** onto the exhaust camshaft and tool **AV 3421** onto the intake camshaft.
- Lock tool **AV 3420** and **AV 3421** onto the support plate **AV 3422** using the 8 (supplied) screws which have to be fitted into the outer slots (Fig. 8).

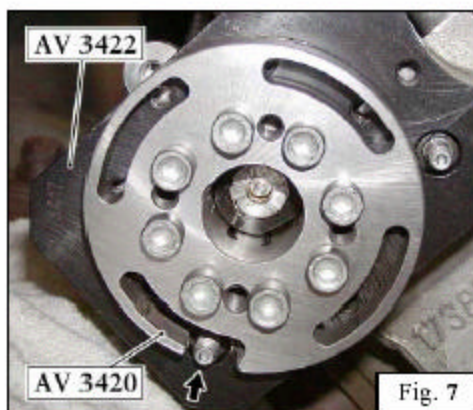


Fig. 7

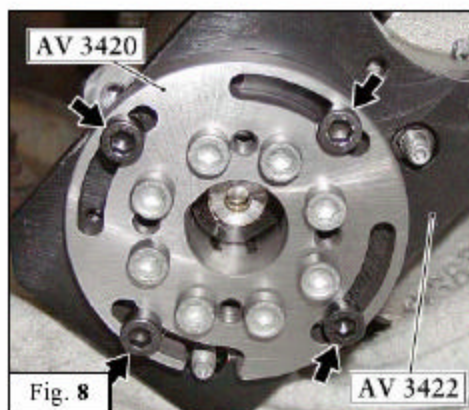


Fig. 8

- Lock tool **AV 3420** and **AV 3421** onto the exhaust camshaft, tightening the 16 central screws (supplied) proceeding crosswise, until reaching a final torque of **25Nm** on each screw.
- Disassemble the pulley for the exhaust camshaft without removing the timing belt.
- Using the special wrench **AV 3131**, remove the timing variator working clockwise (two operators are needed for this procedure).



- Take out the timing variator, taking care not to drop oil on the car underfloor, then clean its seat.

Refitting

- 1 Insert the new timing variator tightening it in an anti-clockwise direction to **160Nm**, using the special wrench and no Loctite.
- 2 Refit the exhaust camshaft pulley matching the reference marks drawn before removal. In the event that the slots on the exhaust manifolds do not match with the timing variators hole, rotate the pulley in an anti-clockwise direction until they match.
In this case, the reference marks between the exhaust and intake pulleys and the timing belt will be non-aligned.
- 3 Fasten the exhaust camshaft pulley applying medium thread-locking Loctite on the screws and tightening to **24Nm**.
- 4 Remove the stop pin from the hydraulic tensioner and release the timing belt from the pliers on the intake and control pulleys.
- 5 Remove the 4 fastening screws from the outer slots of the tool **AV 3420**, so as to release the latter from the support plate **AV 3422**.
- 6 Remove the 8 central screws from tool **AV 3420**, so as to loosen the lock on the exhaust camshaft.
- 7 Fit 4 screws (Fig.9) (taken from the 8 screws previously removed), into the holes facing each other on the locking flange of tool **AV 3420**, and screw them up until extracting the said tool

from the support plate **AV 3422**; use a lever if needed.

- 8 Check that the reference marks between the caps and the exhaust and intake camshafts are still aligned.
 - 9 Mount the gasket and the rear head cover.
 - 10 Carry out all the above mentioned operations on the RH bank, first releasing the retaining bracket for the engine oil cooling pipes. The bracket is secured underneath the movable chassis. Releasing it will make it possible to move the pipes, thereby facilitating the operation. Then start again from point 6 to extract tool **AV 3421**.
- Notes:** Rotate the engine rotate (one complete turn) clockwise and position it to the TDC, then check the belts for tensioning.
- 11 Refit the pulley and the alternator control belt, without installing the protective guards for the timing belts.
 - 12 Connect the diagnostics SD2 system for reading the timing angle of the banks, LH / RH exhaust camshafts .

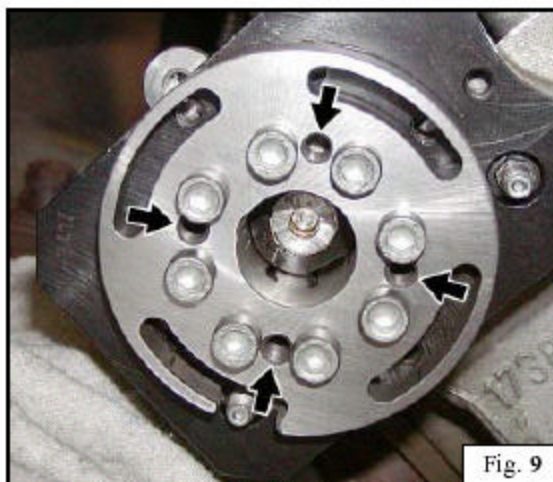


Fig. 9



If the SD2 diagnosis system detects an ERROR, proceed as follows.

- 13 Remove the rear head cover.
- 14 Rotate the crankshaft until it reaches the TDC, checking that the reference marks between the caps and the exhaust and intake camshafts are properly aligned.
- 15 Using a felt-tip pen, draw a position reference mark between the timing variator and the exhaust pulley.
- 16 Loosen the 4 screws on the exhaust camshaft pulley.
- 17 Using a wrench (size 21), rotate the exhaust camshaft anti-clockwise, depending on whether the negative or positive parameter has to be restored.
- N.B.:** if the exhaust camshaft has no slots for fitting the wrench, use adjustable self-locking pliers.
- 18 Fasten the pulley for the exhaust camshaft applying medium thread-locking Loctite onto the screws and tightening to **24Nm**.
- 19 Connect the SD2 diagnosis system for a final test.
- 20 Mount the timing belt guards.
- 21 Refit the tensioner bearing for the alternator control belt.
- 22 Secure the pipe for the water recirculation pump.
- 23 Refit the bracket retaining the engine oil cooling pipes, underneath the movable chassis.

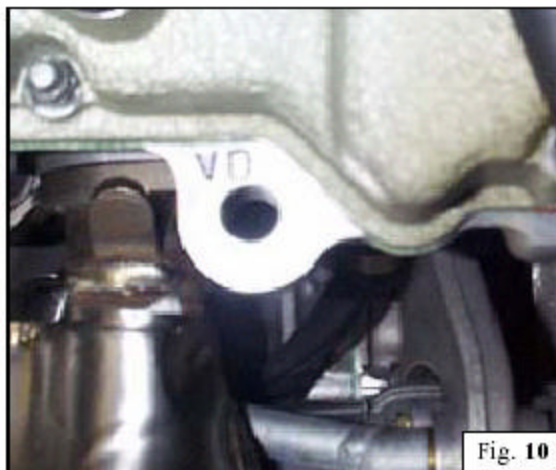


Fig. 10

Note:

To complete the updating procedure and for a faster and easier identification of the vehicles whose exhaust camshaft has been fitted with the timing variator part no. 190042, you must punch the code "VD" on the heads as shown in Fig. 10



Timing Variator and Tensioner Rplacement during a Timing Belt Service

• Component Code.....	1.20.122
• Labor Operation.....	1.20.122.8(1.5 h)
• Problem Code.....	01
• Cost Code.....	23
• Campaign Number.....	97

Timing Variator and Tensioner Rplacement without performing a Timing Belt Service

• Component Code.....	1.20.122
• Labor Operation.....	1.20.122.9(4.7h)
• Problem Code.....	01
• Cost Code.....	23
• Campaign Number.....	97

Timing variators produced from December 2002 to November 2003, must NOT be used, unless they have a green dot. Each variator shows a code identifying its production date.

The codes that are not to be used (unless they have a green dot) are the following:

**2M December 2002
3A January 2003
3B February 2003
3C March 2003
3D April 2003
3E May 2003**

**3F June 2003
3G July 2003
3H August 2003
3J September 2003
3K October 2003
3L November 2003**



The above listed timing variators can be used only if they have a green dot on them. Any variator (without a green dot) in dealer stock must be scrapped using normal parts procedures.



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	360 All Models	1236/A	October 2004	4

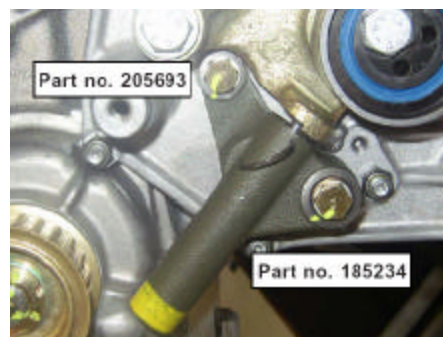
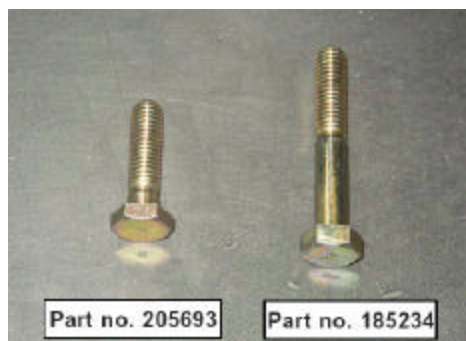
This Bulletin cancels and replaces Bulletin number 1236 dated August, 2004

SUBJECT: Left Bank Timing Belt Tensioner Bolt Replacement Campaign -121

In order to improve the reliability of the left hand timing belt tensioner mounting, we have introduced new mounting bolts (see below) with enhanced mechanical resistance. These will replace the older bolts part numbers 125506 and 16044234 which are no longer available.

This campaign affects vehicles with vin numbers starting with **132525** and ending with vin number **134681**. See the attached vin list of affected vehicles. **Always check with Modis to ensure the vehicle being worked on requires this campaign.**

The Material of the new mounting bolts has been improved from R80/100 to R120 and the surface is coated with a protective yellow or silver galvanizing.





Note: The tightening torque of the bolts remains the same at 25 Nm.
Warranty Information:

Cost Code.....	23
Component Code.....	31.1.120.112
Labor Operation.....	31.1.120.112.9 (2.0 hrs)
Problem Code.....	01
Campaign Number.....	121



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

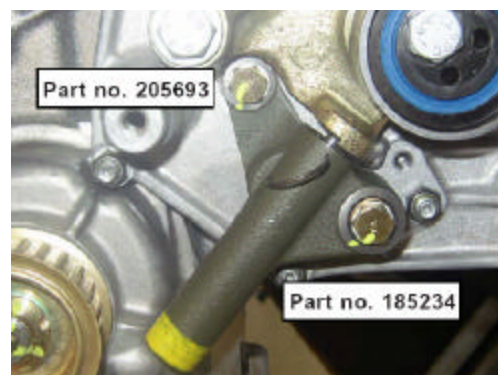
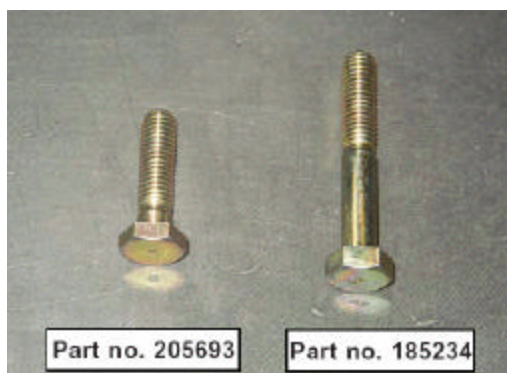
Area	Model	Bulletin n°	Date	Pages
1	360 All Models	1236	August 2004	4

SUBJECT: Left Bank Timing Belt Tensioner Bolt Replacement Campaign -121

In order to help improve the reliability of the left hand timing belt tensioner mounting, we have introduced new mounting bolts (see below) with enhanced mechanical resistance. These will replace the older bolts part numbers 125506 and 16044234 which are no longer available.

This campaign affects vehicles with VINS starting with 133305 and ending with VIN 134553. See the attached VIN list of affected vehicles. Always check with Modis to ensure the vehicle being worked on requires this campaign.

The Material of the new mounting bolts has been improved from R80/100 to R120 and the surface is coated with a protective yellow or silver galvanizing.





Note: The tightening torque of the bolts remains the same at 25 Nm.
Warranty Information:

Cost Code.....	23
Component Code.....	31.1.120.112
Labor Operation.....	31.1.120.112.9 (2.0 hrs)
Problem Code.....	01
Campaign Number.....	121

VIN

132525	132885	133115	133318	133549
132573	132886	133122	133323	133560
132671	132887	133132	133324	133561
132680	132888	133137	133328	133562
132685	132895	133138	133329	133563
132686	132896	133139	133333	133570
132696	132897	133144	133334	133571
132702	132906	133145	133335	133572
132703	132907	133146	133339	133580
132712	132970	133147	133340	133581
132720	132971	133153	133343	133586
132721	132977	133154	133344	133587
132722	132978	133155	133348	133588
132775	132984	133161	133350	133598
132776	132985	133162	133353	133599
132777	132986	133163	133354	133600
132787	132991	133172	133364	133601
132788	132992	133173	133365	133604
132800	132993	133183	133370	133605
132801	132994	133184	133371	133606
132802	133002	133191	133372	133607
132809	133003	133192	133376	133608
132818	133004	133195	133377	133620
132819	133005	133232	133386	133621
132820	133012	133236	133387	133630
132821	133013	133237	133388	133634
132822	133014	133241	133434	133635
132828	133015	133242	133435	133636
132829	133046	133243	133440	133641
132830	133047	133248	133443	133645
132831	133052	133249	133444	133646
132836	133060	133250	133450	133647
132837	133066	133251	133451	133648
132838	133072	133256	133462	133651
132842	133073	133257	133463	133652
132848	133074	133260	133464	133653
132849	133075	133275	133471	133654
132853	133082	133283	133482	133655
132854	133083	133290	133483	133660
132858	133084	133297	133489	133661
132859	133085	133298	133490	133662
132860	133089	133305	133491	133663
132863	133090	133306	133520	133665
132864	133091	133307	133521	133666
132865	133092	133308	133527	133667
132866	133099	133309	133532	133668
132875	133100	133310	133539	133669
132876	133101	133311	133540	133677
132877	133102	133312	133544	133678
132883	133113	133315	133545	133679
132884	133114	133317	133548	133680

VIN

133681	133817	133989	134119	134398
133685	133819	133990	134120	134399
133686	133820	133998	134163	134406
133687	133821	133999	134164	134409
133688	133826	134000	134167	134410
133689	133836	134001	134168	134412
133694	133837	134009	134173	134413
133695	133838	134010	134174	134419
133696	133839	134016	134175	134420
133697	133845	134017	134176	134426
133698	133846	134018	134177	134427
133731	133847	134019	134178	134435
133733	133848	134051	134179	134436
133734	133849	134054	134182	134437
133735	133854	134055	134187	134445
133737	133855	134056	134188	134446
133740	133856	134057	134189	134453
133741	133857	134059	134195	134454
133742	133858	134060	134196	134462
133744	133861	134061	134204	134463
133745	133862	134062	134220	134470
133748	133863	134064	134226	134478
133749	133864	134065	134229	134484
133759	133865	134066	134230	134485
133764	133872	134068	134237	134486
133765	133873	134069	134238	134540
133766	133874	134070	134247	134542
133767	133875	134071	134248	134543
133768	133876	134073	134252	134544
133772	133880	134074	134254	134547
133773	133881	134075	134255	134548
133774	133882	134088	134265	134553
133775	133883	134089	134266	134681
133776	133943	134090	134273	
133785	133945	134091	134274	
133786	133946	134092	134338	
133787	133947	134093	134339	
133788	133949	134098	134340	
133789	133950	134099	134341	
133799	133951	134100	134342	
133800	133959	134101	134344	
133801	133960	134102	134345	
133802	133961	134106	134361	
133803	133962	134107	134362	
133807	133964	134108	134369	
133808	133965	134109	134370	
133809	133973	134110	134376	
133811	133974	134111	134382	
133812	133975	134116	134383	
133815	133976	134117	134391	
133816	133988	134118	134397	



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	360 All Models	1254	October 2004	2

SUBJECT: Flywheel Fastening Bolts

For your information, starting with engine number 86596 (chassis number; 138956), new bolts, part number 201755 (Fig.1) are being used to attach the flywheel to the crankshaft.



**Fig.1
New Bolt**



**Fig.2
Old Bolt**

The new bolts (part number: 201755, Fig.1) have threads the full length of the bolt as compared to the older bolt (part number 103875, Fig.2).



They should be installed along with a new washer (part number;103876) anytime the flywheel or the clutch is being replaced. (Fig.3)

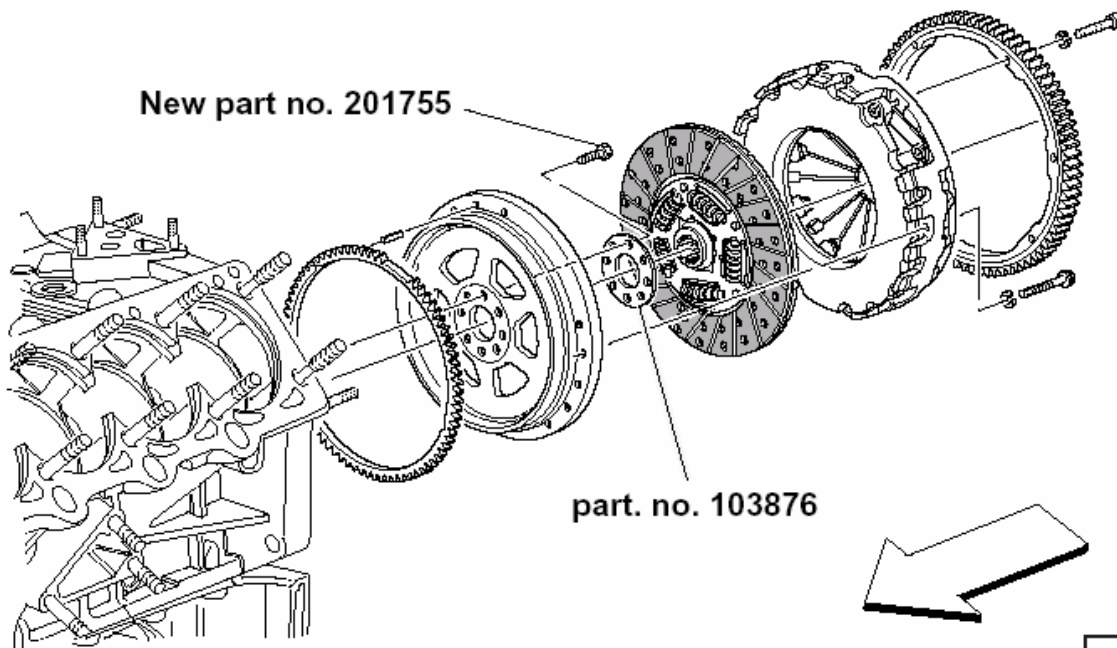


Fig. 3

The bolts must be installed without any lubricants and torqued to 91 Nm (+/- 5%).



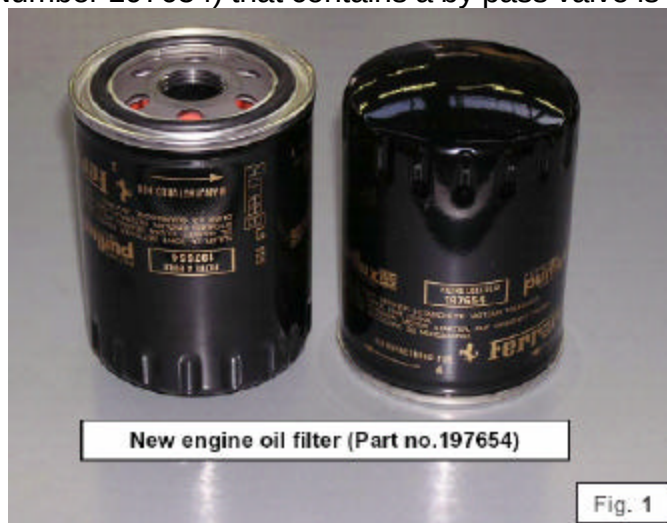
**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	360 All Models	1261	October 2004	1

SUBJECT: New Oil Filter with by-pass valve

For your information, starting with chassis number 139203 (engine number 87093), a new oil filter (Part Number 197654) that contains a by-pass valve is now being used.



This new filter is the only one to be used from now on.

All old stock filters, (p/n 191462) should be returned to FNA by 11/30/2004 to receive credit.

Any stock not returned by that date will not be eligible for credit.



**FERRARI NORTH AMERICA, INC.
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TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
6	360 All Models Challenge Stradale	1266	January 2005	9

SUBJECT: Ball Joint Replacement

For your information, Ball Joints can now be replaced separately, instead of replacing the complete control arm.



In the event that the joints are replaced, **new ball joints (part no. 203633 for the upper levers and part no. 203632 for the lower levers)** are available which are **completely interchangeable** with the original parts, and which can be fitted **on all the suspension levers.**



The ball joints are secured on the levers by means of a gluing process and using stop (Seeger) rings incorporated into **special boots (part no. 171848 for the upper levers and part no. 171847 for the lower levers)**, which protect the joint and maintain the original lubrication of the friction surfaces.

Note: When replacing the joint, you must also replace boots with the stop ring.

The tables show the suspension lever part numbers.

Front suspension		
Description	Code	Qty
Upper lever complete with joint	185077	2
Upper lever complete with joint	193456	2
Upper lever complete with joint	200945	2
Lower cast lever complete with joint	185078	2
Lower cast lever complete with joint	200939	2
Lower forged lever complete with joint	199633	2
Lower forged lever complete with joint	200940	2

Rear suspension		
Description	Code	Qty
Upper lever complete with joint	185079	2
Upper lever complete with joint	193457	2
Upper lever complete with joint	200946	2
Lower RH cast lever complete with joint	185080	1
Lower LH cast lever complete with joint	185081	1
Lower RH cast lever cast complete with joint	200943	1
Lower LH cast lever cast complete with joint	200944	1
Lower RH forged lever complete with joint	199634	1
Lower LH forged lever complete with joint	199635	1
Lower LH forged lever complete with joint	200941	1
Lower LH forged lever complete with joint	200942	1

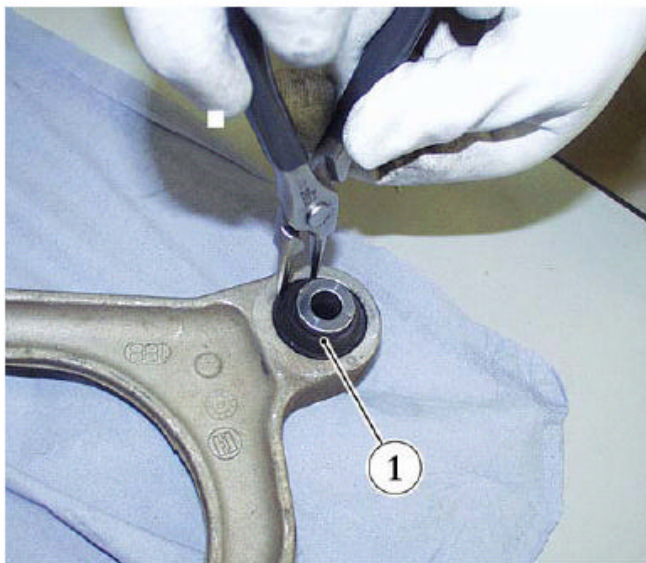


Repair procedures.

Once the need to replace the ball joint has been determined, proceed to remove the entire lever from the vehicle, following the instructions given in section **F 2.03** of the Repair Manual.

Then proceed by disassembling the components and replacing the ball joint, following the procedure outlined below:

- Remove the boots (**1** on the upper lever and **2** on the lower one), working on both sides of the joint with Seeger pliers.



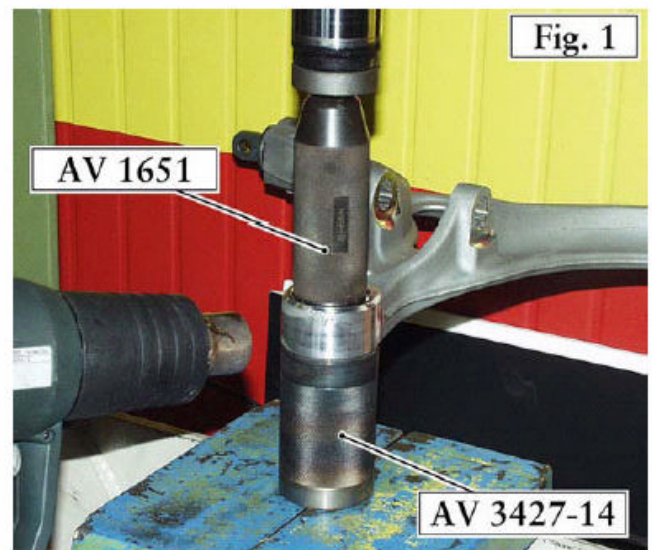
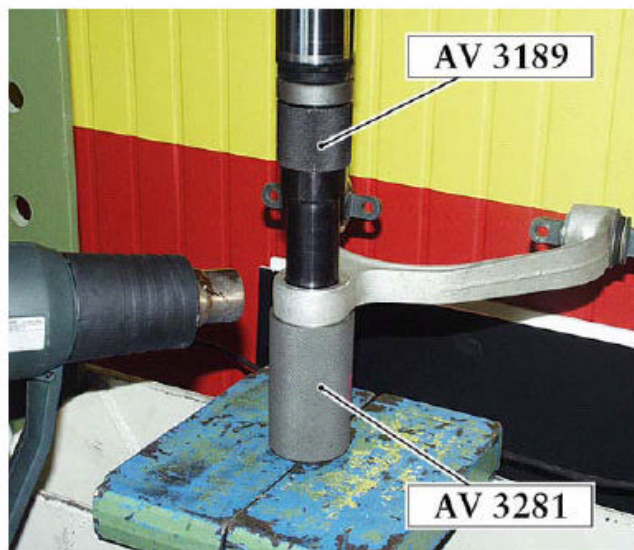


- Place the lever under the press, resting it on tool **AV 3281** or **AS 10723-07** (for the upper lever) and **AV 3427-14** or **AV 3189** (for the lower lever).
- Position tool **AV 3189** (for the upper lever) or **AV 1651** (for the lower lever), on the joint, then heat the joint area with a heat gun (40-60 °C) to facilitate its removal.

IMPORTANT

The lower lever must be positioned under the press as shown in **Fig. 1**, as the lever and ball joint have a ledge on the side opposite the shock absorber coupling.

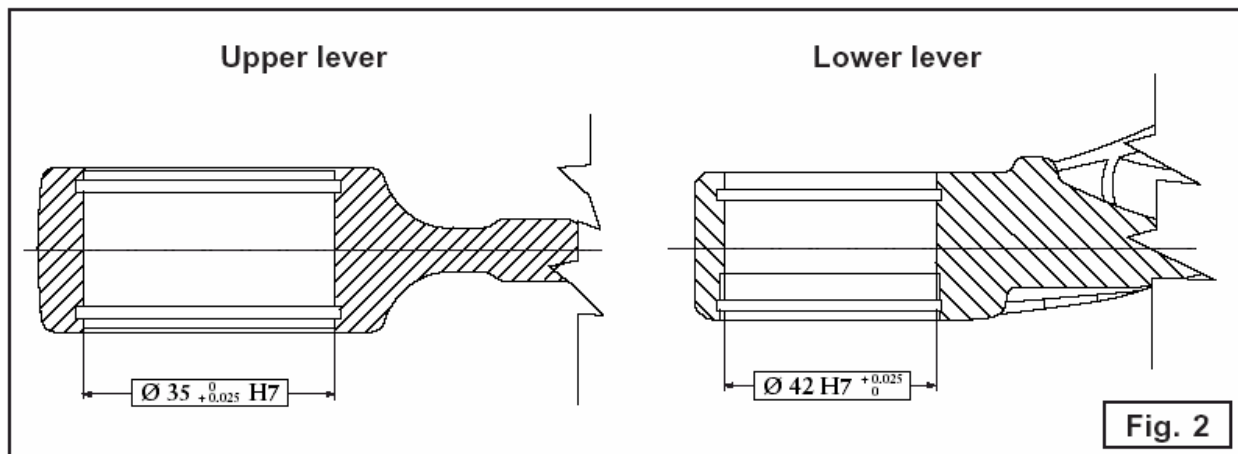
- Make sure the parts are perfectly centered and aligned and operate the press, using it to extract the joint fully and taking care not to damage its seat on the lever.



- Dip the ball joint seat found on the lever in a pan filled with suitable solvent to remove any residual adhesive from the housing.
- Leave the lever in the solvent for approx. **3 hours**, then remove all traces of residual adhesive, using a scraper and abrasive steel wool pad.

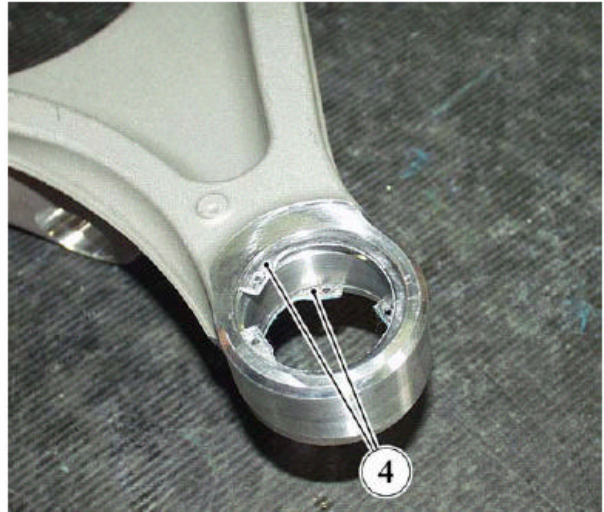
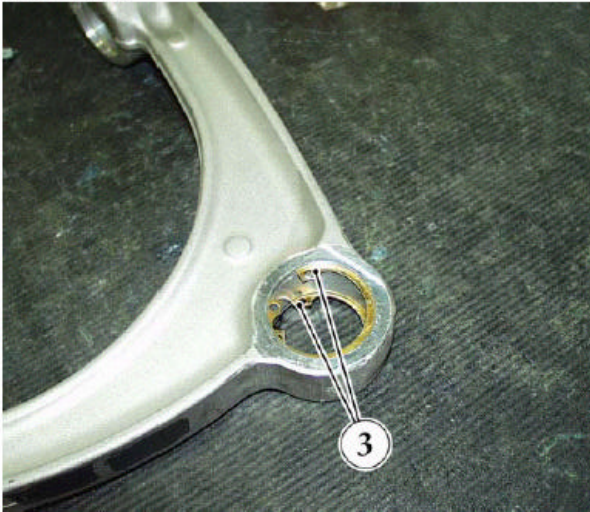


- After carefully cleaning the joint seat, check the diameter of the joint housing using a gauge or a bore meter and then compare the measurements with those given in **Fig. 2**.
- If the measurements do not fall within the tolerance limits, replace the lever.



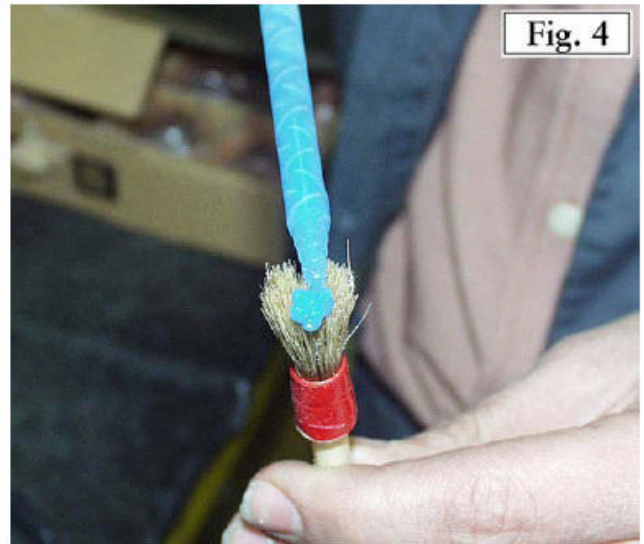
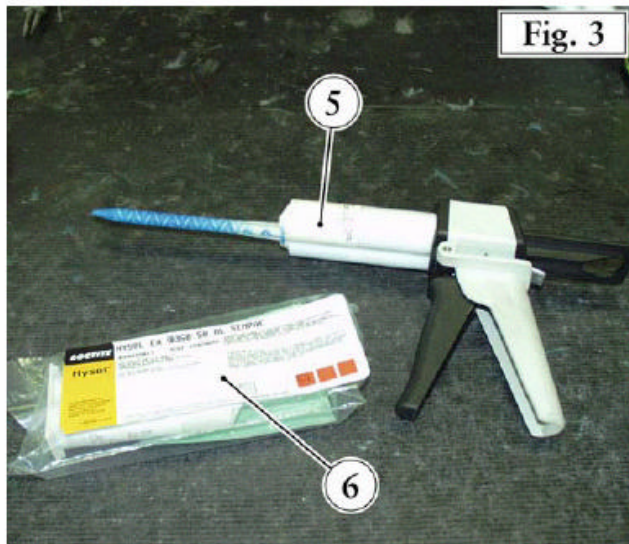


- Clean the contact areas on the seat and the new joint with **isopropyl alcohol**.
- After retrieving the stop rings from the original protection boots (**3**, on the upper lever and **4** on the lower one), fit them in the seats on the lever to prevent the adhesive from running into the seats.





• Using an extrusion gun (5, Fig. 3), apply **LOCTITE Hysol EA 9360 50 ML SEMPAK** (6 adhesive, p/n **184241**) to the bristles of a small brush (Fig. 4, then, spread it evenly over the outer surface of the joint and the seat on the lever.





IMPORTANT:

MAKE SURE THE ADHESIVE DOES NOT GET ON THE INSIDE OF THE JOINT.

- After removing the stop rings (3) fitted earlier, fit the new joint in the upper lever.
- After removing the stop ring (4) fitted earlier on the side opposite the shock absorber coupling, fit the new joint in the lower lever.
- Push the new joint until it is touching the other stop ring, then remove the latter from the lever.

IMPORTANT

MAKE SURE THERE ARE NO TRACES OF ADHESIVE LEFT INSIDE THE STOP RING SEATS.



- Apply **white lube** to the inside of the new boots equipped with stop rings and fit them in their seats **Fig. 5**.
- Rotate the stop ring to ensure the ball joint moves and engages correctly.
- Carefully clean the outside of the boots to remove any residual grease.
- To prevent infiltrations of water and dirt, we recommend you seal the two holes in the boots for the stop ring engagement with silicon.
- Remove any excess silicon.



IMPORTANT

BEFORE REFITTING THE LEVER IN THE VEHICLE, PLACE IT IN THE OVEN for 45 minutes at 90 °C. to COMPLETE THE DRYING PROCESS FOR THE LOCTITE USED EARLIER.



Servicing rules:

Please note that **from now on**, for the **replacement, under warranty**, of any faulty ball joints **part no. 178929** and **part. no. 178928** reports will only be accepted if stating the **new time allowances** below:

Front suspension

- Replacement of ball joint **part. no. 178929** on upper lever **1.2 hours**
- Replacement of ball joint **part. no. 178928** on lower lever **2.2 hours**

Rear suspension

- Replacement of ball joint **part no. 178929** on upper lever **2.2 hours**
- Replacement of ball joint **part no. 178928** on lower lever **3.8 hours**

Note:

The time allowances stated above include:

- › **Detaching and refitting the levers;**
- › **Replacing the ball joint;**
- › **Partial front or rear setup (replacement on lower levers);**
- › **Use of an oven to dry the Loctite adhesive.**



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
10	All Models	1275	March 2005	1

SUBJECT: Pin extraction tool kit

For your information, a tool kit is now available for use on all models to extract pins from electrical connectors. One kit (Fig. 1) will be sent automatically. If additional kits are required, they can be ordered from the parts department using part number, 2018028.

Fig. 1





**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
10	All Models	1277	January 2005	1

SUBJECT: Diagnosis Software Kit

This is to inform you that you will automatically receive a new diagnosis software kit. This software kit, part number, 95991075 will contain 2 CDs and a new cable for use with the SD 3.

The first CD will contain:

Diagnosis software for F 430 vehicles, version 1.3 G
Diagnosis software for 612 Scaglietti vehicles, version 8.4I
SD 3 basic software, version 1.0.1.6
SD 3 tester operating system, version 2.25

The second CD will contain:

SD 1 / SD 2 Porting software for SD 3, version 2.0

The SD 3 tester cable supplied is used for running diagnosis cycles through the B-Can line on Enzo models.



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
2	360modena - 360spider <i>Challenge Stradale</i>	1285	January 2005	1

SUBJECT: New Clutch Assembly

For your information, starting with chassis number 136298 (assembly number, 53588) a new clutch assembly (part number, 201680) which consists of a clutch disc and pressure plate, is now being installed.

The new clutch assembly (part number 201680) is interchangeable with the original clutch assembly (part number, 199044). With this new assembly, the clutch disc is not available separately.

Anytime a clutch requires replacement, use the newer style assembly part number, 201680.



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	360 All Models	1301	March 2005	11

This Technical Information Bulletin cancels and replaces Bulletin number 932/A.

SUBJECT: New Connecting Rods for all 360 Engines

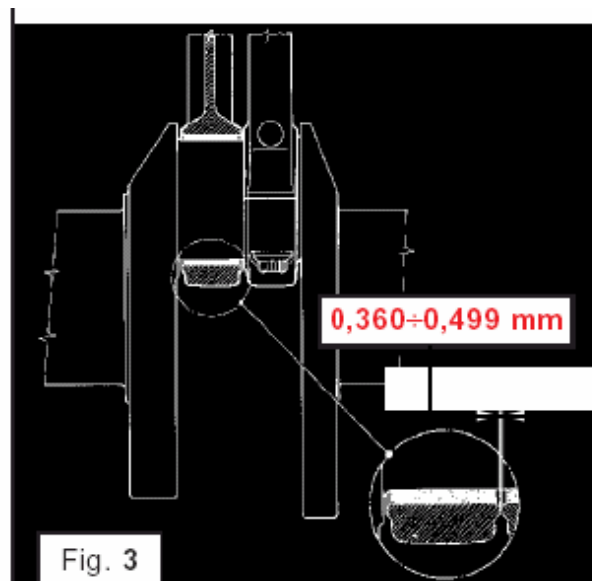
For your information, as of **engine no. 89460** installed on vehicle **assembly no. 57325**, with **chassis no. 140166**, new con-rods, **p/n 212652** are now being installed (Fig. 2). These differ from the previous con-rods (Part no. **196976** - Fig. 1) since they now have a **molybdenum layer** applied to the contact surfaces.





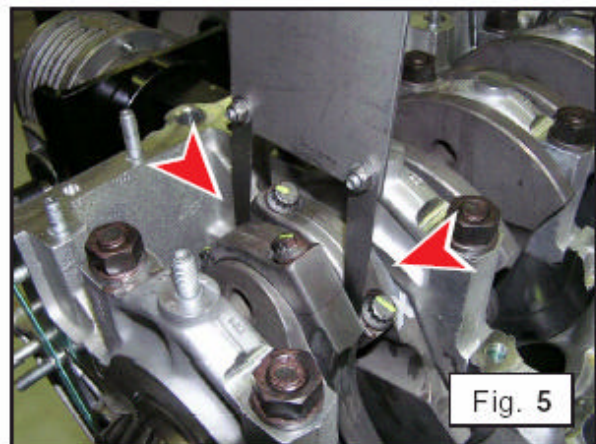
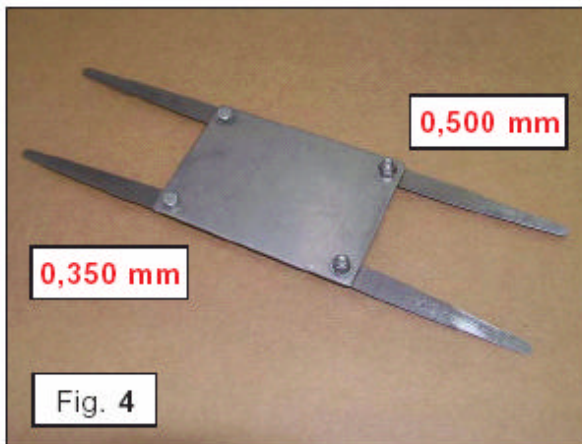
Servicing rules

- › These con-rods are the only con-rods to be used if replacing parts during engine overhauls on all versions of the 360 model.
- › The con-rods must be fitted positioning the surfaces with the molybdenum layer (matte finish) so that they are coupled, and they must be tightened to the indicated torque of **15 Nm. + 65°**.
- › The con-rods must be coupled at the height indicated in Fig. 3, which must be measured as follows:

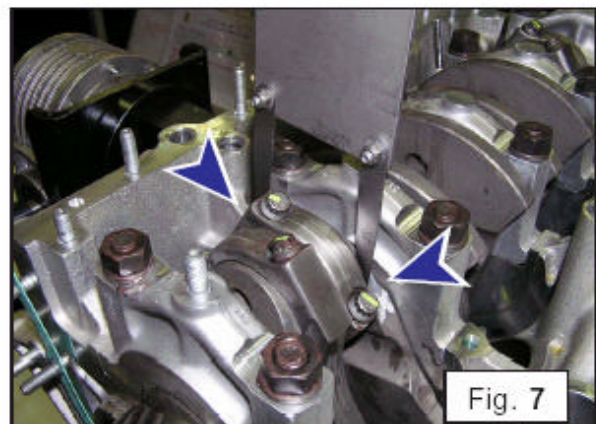
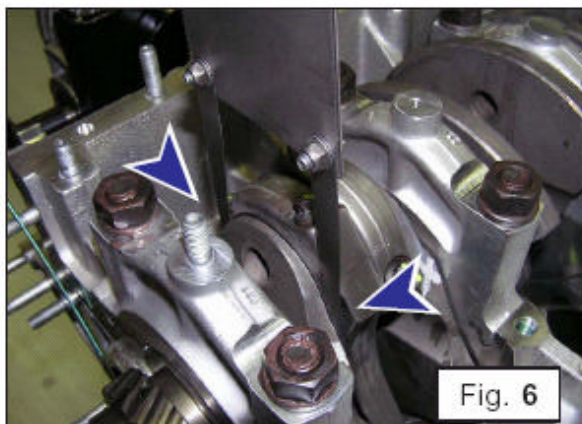




› Using a feeler gauge (Fig. 4), or two feeler gauges with 0.350 mm and 0.500 mm thick blades, check the overall coupling end float on the inner sides of the con-rods at the same time, as shown in Fig. 5.



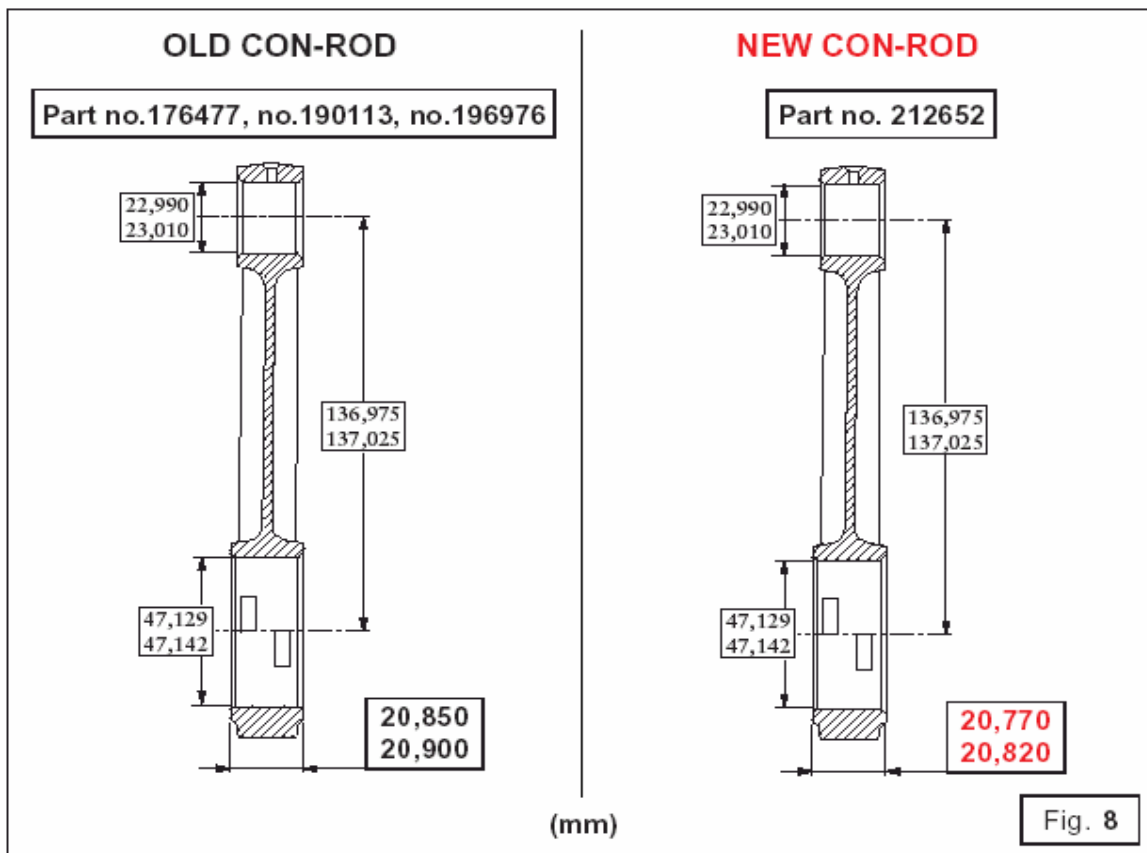
› Check the coupling end float on the outer surfaces of the con-rods between the crankshaft counterweights as shown in Fig. 6 and 7.





This measurement has been reduced with the use of the new con-rods part no. 212652, as shown in Fig. 8.

Therefore, the increase in the end float of the con-rod coupling and, in particular, the use of the molybdenum layer (page 2, Fig. 2), represent the differences between the two versions.



Servicing rules for pre-modification engines.

Particular care must be taken when checking the surfaces of the con-rods to be coupled and fitted on the crankshaft: the coupling surfaces must be in perfect condition.



IMPORTANT:

- › If any signs of wear **are found** on the contact surfaces that indicate the con-rods must be replaced, **even on just one pair of con-rods, all the con-rods must be replaced using the newer version with molybdenum layer.**
- › The new con-rods supplied will be identified as “Pankl con-rod kit” (8 pieces), part no. 70001114.
- › As a result of the new, specific technical features, it will be possible to replace the individual con-rods only on vehicle versions that already have the newer style con-rods fitted. New and old versions cannot be used together.
- › If individual replacement of the newer style con-rods is necessary, you must order the new parts using the same class of weight of the parts being replaced, which is indicated with a letter engraved on the large ends and refers to the weights indicated in the table in Fig. 9.

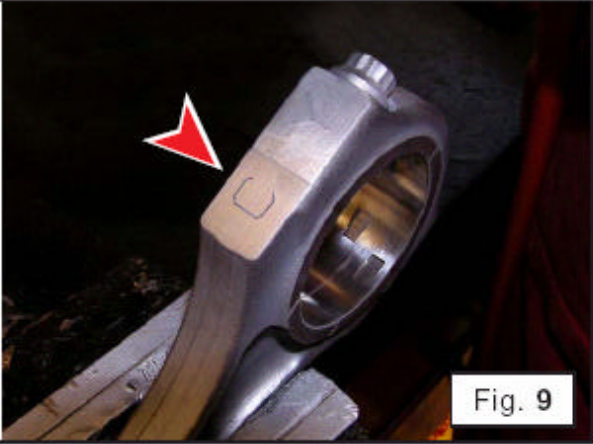
Con-rod classification		
Letter	Weight (g)	
A	380 - 384	
B	384 - 388	
C	388 - 392	
D	392 - 396	
E	396 - 400	
F	400 - 404	
G	404 - 408	

Fig. 9



› Before fitting the part on the crankshaft, using an air pen (Ingersoll Rand - EP 50 EU) or an electric pen, engrave the cylinder reference number (from 1 to 8) on the new con-rods and on the cap, where the weight classification letter is already engraved as shown in Fig. 10.

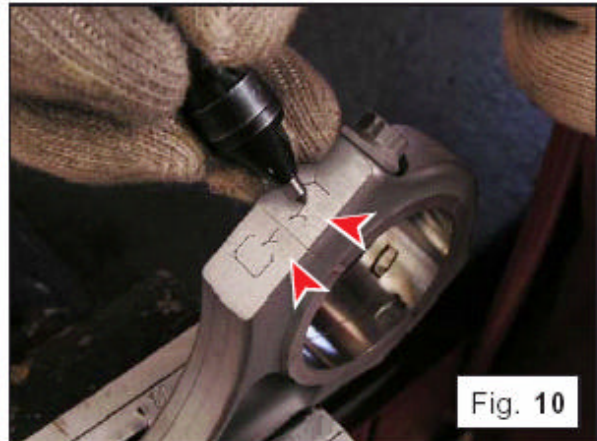


Fig. 10

IMPORTANT:

› To help you identify the parts in future checks, you must mark the con-rod caps with the letter “M” (Molybdenum), which will indicate that the latest type of con-rods are fitted, as shown in Fig. 11.

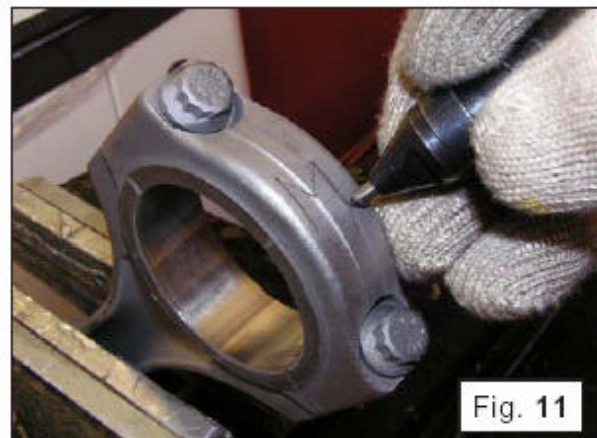


Fig. 11

› If you do not find any signs of wear on the contact surfaces of the original con-rods they can be reused. Please follow the instructions listed below, which will refer to the different types of con-rod fitted:

- As for engines from start of production up to engine no. 61586, manufactured with con-rods part no. 176477, if the con-rods are reused, they must be tightened to a torque of 15 Nm. + 45°.

- As for engines from no. 61587 (Rest of the world) and from no. 62332 (USA), up to engine no. 71272, manufactured with con-rods part no. 190113, if the con-rods are reused, these must be fitted positioning the surfaces with the “notches” machined on them together (page 1-Fig. 1), and they must be tightened to a torque of 15 Nm. + 45°.

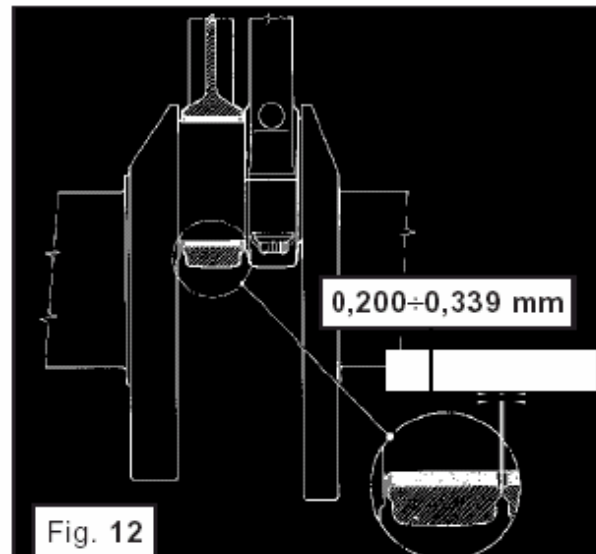


- As for engines from no. 71273, up to engine no. 89459, manufactured with con-rods part no. 196976, if the con-rods are reused, these must be fitted positioning the surfaces with the "notches" machined on them together (page 1-Fig. 1), and they must be tightened to a torque of **15 Nm. + 65°**.

NOTE: The torque wrenches USAG 815F, part no. 95978150 (220V), or part no. 95978152 (110V) must be programmed to ensure the two tightening torques comply with the requirements for engine overhaul.

On pages 9 through to 11, listed are the instructions for running the programming procedure.

› The coupling measurement for the above mentioned con-rods must be as indicated in Fig. 12, and must be measured as outlined earlier (page 2 Fig. 5, 6, 7), using feeler gauges with 0.190 mm and 0.340 mm thick blades.

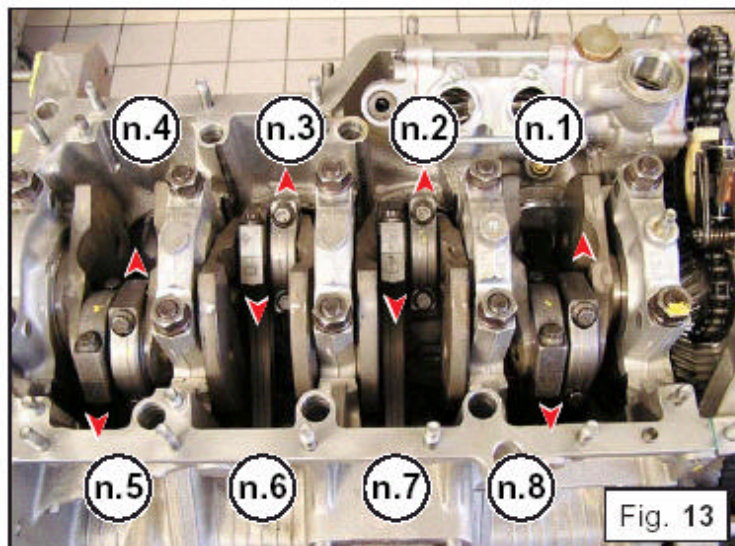


IMPORTANT:

› The only con-rod bearings to use during overhaul for all the con-rods specified, including the newer version with molybdenum layer, are bearings part no. 193622 (as stated in Technical Information Bulletin no.1063.)



› Fit the con-rods, positioning them on the crankshaft with the side where the weight classification letters and the cylinder reference number are marked, so that they face the outside of the engine, exhaust side (red arrows), respecting the “U”-shaped (or horseshoe) piston fitting arrangement. Remember that the cylinder layout starts with the front LH cylinder as no. 1 (if you are looking from the camshaft side of the engine) as shown in Fig. 13.



› **NOTE:** Any time the connecting rods are serviced or replaced, the fastening screws for the connecting rod cap must be replaced with new screws, following the procedures outlined in chapter B3.06 of the Repair Manual, and tightened to the torque specified for the type of con-rod installed.



PROGRAMMING THE TORQUE WRENCH USAG815F

Part no. 95978150 (220V) - Part no. 95978152 (110V)

To update the torque wrench, you must enter the new tightening torque value **in the first free program** which should correspond to “**program no. 13**”.

To run the programming cycle, proceed as follows:

- › Turn on the wrench by pressing the “**ON**” button;
- › If there is no free program selected on the display, press button “**è**” repeatedly;
- › By pressing button “**M**”, the user can access the program settings cycle. The display will look like the example given:

N	.	P	R	O		M	E	A	S	.		U	N	I	T
		1	3												

- › Press button “**I**” repeatedly until the following words appear on the display:

				P	R	O	G	R	A	M					
				L	O	C	K								

- › You will now be able to “**unlock**” the program by pressing buttons “**C**” + “**I**” at the same time until the following words appear:

				P	R	O	G	R	A	M					
				U	N	L	O	C	K						

Note: Now all the settings in program no. 13 can be modified.
Follow these instructions carefully and take special care when performing the below listed operations:

- › Confirm the selection by pressing button “**I**”. The following words will appear on the display:

N	.	P	R	O		M	E	A	S	.		U	N	I	T
		1	3												



- › Next press button “è” and select value “A” then press button “I” to confirm the selection;

N.	P	R	O		M	E	A	S.		U	N	I	T
	1	3						A					

- › Press button “è” and select the “Nm” value, then press button “I” to confirm the selection;

N.	P	R	O		M	E	A	S.		U	N	I	T
	1	3						A		N	m		—

- › A screen page will appear on the display in which you can enter the tightening angle value;

T	R	Q	A	L	E	X	T						

- › Press button “è” and select value “0” then press button “I” to confirm the selection;
- › Press button “è” until you select value “1” then press button “I” to confirm the selection;
- › Press button “è” until you select value “5”, then press button “I” again to confirm the tightening torque setting;

T	R	Q	A	L	E	X	T						
	0	1	5										

- › Press button “è” and select value “C” then press button “I” to confirm the selection;

T	R	Q	A	L	E	X	T						
	0	1	5				C						

- › A screen page will appear on the display in which you can enter the tightening torque value;

A	N	G			T	Y	P			T	O	L	



- › Press button “è” once and button “I” to confirm value “0”;
- › Press button “è” until you select value “4” then press button “I” to confirm the selection;
- › Press button “è” until you select value “5”, then press button “I” again to confirm the tightening angle setting;

A	N	G				T	Y	P			T	O	L	
0	4	5	-			A	B	S						

- › If button “I” is pressed twice, the following words will appear on the display:

A	N	G				T	Y	P			T	O	L	
0	4	5	-			A	B	S			0	0	1	

				P	R	O	G	R	A	M				
				U	N	L	O	C	K					

- › To “lock” the program, press buttons “C” + “I” at the same time until the following words appear on the screen:

				P	R	O	G	R	A	M				
				L	O	C	K							

- › Press button “I” to exit the cycle and the following words will appear on the display:

N	.	P	R	O		M	E	A	S	.		U	N	I	T
	1	3													

- › Lastly press button “I” followed by button “M” to access the operative mode and close the setting cycle;
- › The wrench is now updated with the new value entered;
- › Switch the wrench off then on again with the “ON” button and check that the value entered has been saved.



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
6	All 360 Models and <i>Challenge Stradale</i>	1308	April 2005	2

This must be used together with Bulletin 1266 when performing ball joint replacements on All 360 Models and Challenge Stradale Models.

SUBJECT: Labor Operation and Repair Times for Ball Joint Replacement

For your information, listed below are the Labor Operation Codes that must be used when entering any Warranty Claims that involve the replacement of ball joints. This Technical Information Bulletin must be used together with Technical Information Bulletin number 1266 dated, January 2005.



Operation Code	Description	Time allowance
6.10.166.0	Joint for Front RH Upper Lever, R & R or Replacement	1,20
6.10.167.0	Joint for Front LH Upper Lever, R & R or Replacement	1,20
6.10.168.0	Joint for Front RH Lower Lever, R & R or Replacement	2,20
6.10.169.0	Joint for Front LH Lower Lever, R & R or Replacement	2,20
6.20.163.0	Joint for Rear RH Upper Lever, R & R or Replacement	2,20
6.20.164.0	Joint for Rear LH Upper Lever, R & R or Replacement	2,20
6.20.165.0	Joint for Rear RH Lower Lever, R & R or Replacement	3,80
6.20.166.0	Joint for Rear LH Lower Lever, R & R or Replacement	3,80
31.6.10.166.1	Joints for Front RH & LH Upper Levers, R & R or Replac.	2,20
31.6.10.168.1	Joints for Front RH & LH Lower Levers, R & R or Replac.	3,40
31.6.20.163.1	Joints for Rear RH & LH Upper Levers, R & R or Replac.	3,50
31.6.20.165.1	Joints for Rear RH & LH Lower Levers, R & R or Replac.	5,40

Note:

The time allowances stated above include:

- › Removing and refitting the levers;
- › Replacing the ball joint;
- › Partial front or rear wheel alignment (operation on lower levers);
- › To put in to and to take out the levers of the oven (to dry the Loctite adhesive).



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
10	All Models	1314	April 2005	5

SUBJECT: Replacement parts for the SD 3 Tester

For your information, individual replacement parts are now available for the SD 3 tester.

Listed below is the part numbers and photo's of the available parts.

Compact Flash Wlan IEEE 802.11b
Part No. 95970322 (Fig. 1)



SD3 - Aluminium/ABS suitcase with
screen-printing
Part No. 95970323 (Fig. 2)





SD3 - RS232-PC Wiring
Part No. 95970327 (Fig. 6)



Fig. 6

SD3 - Multimeter wiring
Part No. 95970328 (Fig. 7)

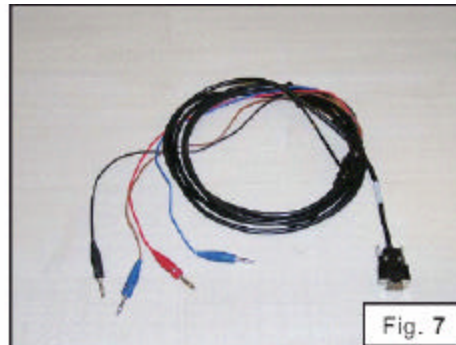


Fig. 7

SD3 - Cross-Over wiring
Part No. 95970329 (Fig. 8)



Fig. 8



SD3 - A-B USB wiring
Part No. 95970330 (Fig. 9)



SD3 - 220v/12v power adapter wiring
Part No. 95970331 (Fig. 10)



SD3 - EOBD Wiring
Part No. 95970332 (Fig. 11)





SD3 - 25-pole wiring harness
Part No. 95970333 (Fig. 12)



Fig. 12

SD3 - Jack-Minitimer adapter
Part No. 95970334 (Fig. 13)



Fig. 13

SD3 - Cigarette lighter-Minitimer adapter
Part No. 95970335 (Fig. 14)



Fig. 14



SD3 - ISO1 extension
Part No. 95970336 (Fig. 15)



SD3 - ISO2 extension
Part No. 95970337 (Fig. 16)





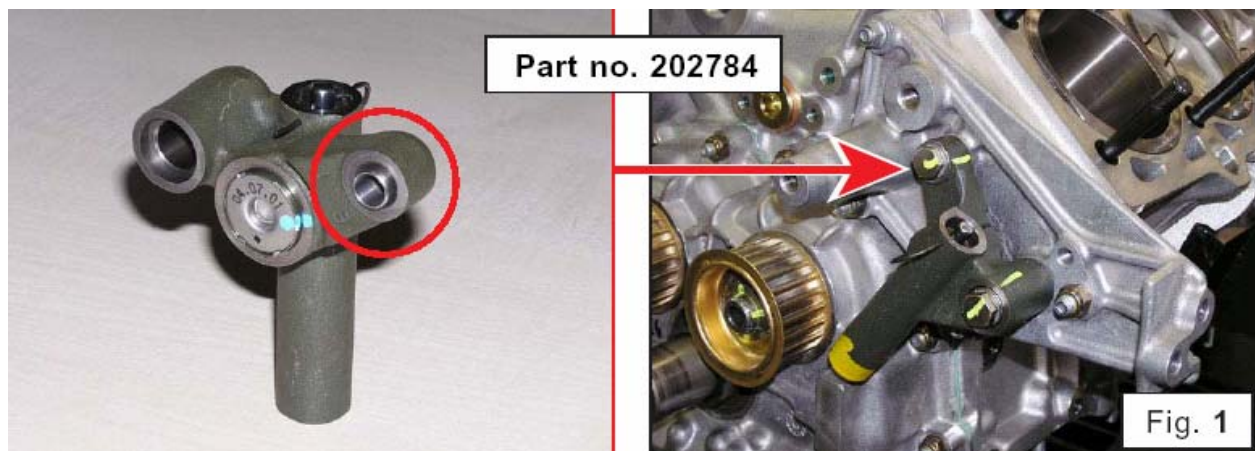
**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	360 All Models	1315	May 2005	2

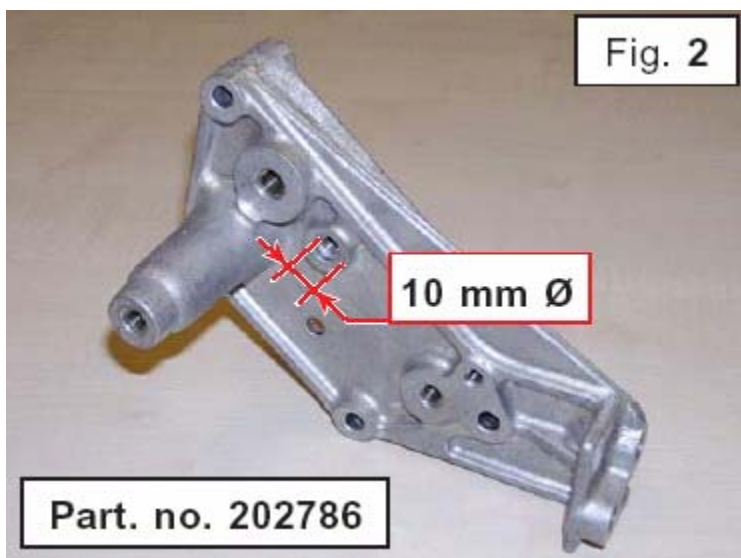
SUBJECT: L H Hydraulic Tensioner

For your information, starting with chassis number 136507 (assembly number 54662, engine number 83762) a newer style belt tensioner with a centering bushing is being used. (Fig. 1)





To accomadate the newer tensioner, the mounting hole on the support bracket (part num. 202786) was enlarged to 10mm from 6mm. (Fig. 2)



The newer I /h tensioner part number 202784 is the only one being supplied by The Parts Department.
In the event that it is being mounted on a vehicle with an engine number below 83762, The centering bushing (circled below) will have to be removed.





**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
1	All Models With F1 Gearbox	1320	May 2005	3

SUBJECT: Checking the F1 System Oil Level

Below please find the **correct procedure** for checking the F1 system oil level. This procedure **updates** the instructions given in the Repair Manuals for the listed vehicles:

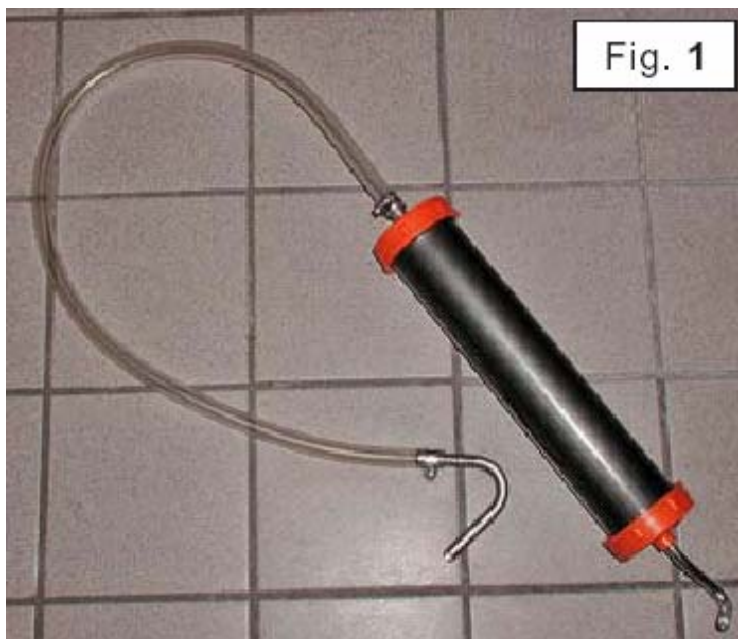
360 All versions	section A3.11 of the Repair Manual
F430 / F430 spider	section A3.15 of the Repair Manual
Enzo Ferrari	section A3.10 of the Repair Manual
575M Maranello	section A3.11 of the Repair Manual
612 Scaglietti	section A3.03 of the Repair Manual

Follow the Repair Manual procedures for gaining access to the oil tank for the F1 gearbox system installed in the above mentioned vehicles. You must observe the following procedure for checking the oil level:



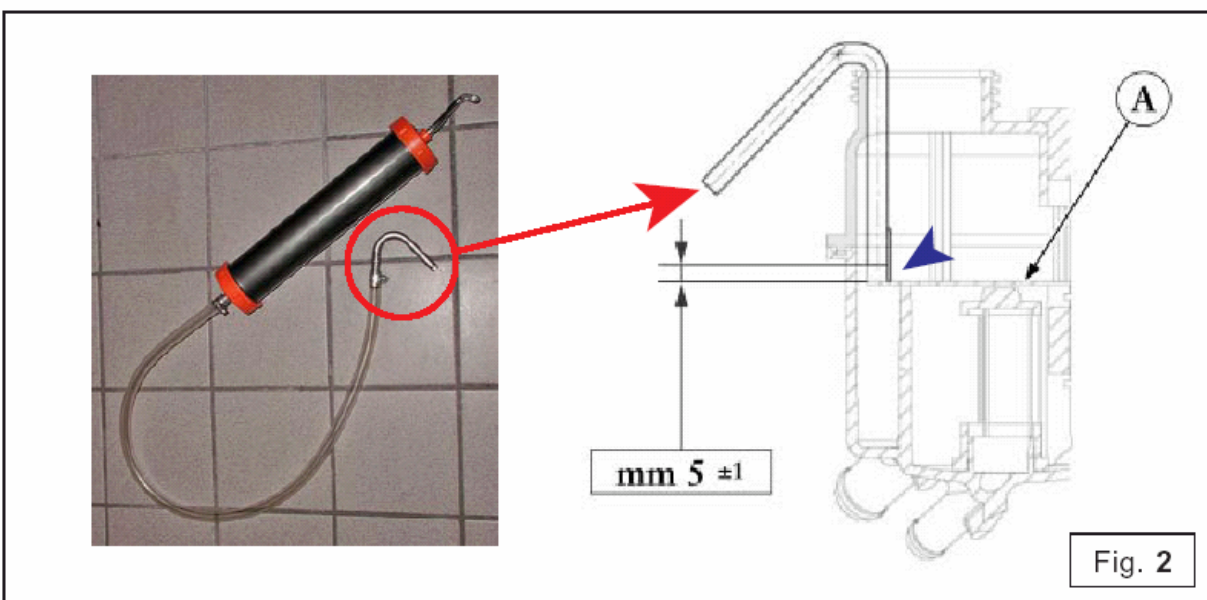
IMPORTANT: To check the level and, if needed, top up the oil, the vehicle must be in a level position, with the engine cold, the system filled, thoroughly bled (no air inside) and serviced in compliance with the MAINTENANCE TIME SCHEDULE.

- › Unscrew the tank cap.
- › Turn the ignition key to position II and wait for the “F1” system pump to start.
- › Soon after the pump has turned off, restore the oil level using tool part no. 900026350 (Fig. 1).



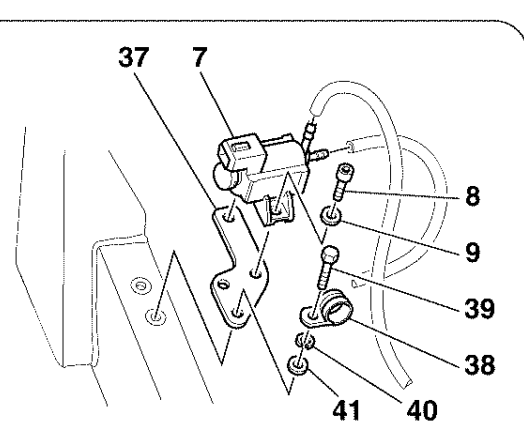


- › **Position the end of the tool pipe inside the oil tank**, so that it rests on the internal disk (A), as shown in Fig. 2, then **inject enough of the recommended oil to fill the tank about halfway**.
- › The **correct oil level must be 5 ± 1 mm above the disk (A), inside the tank**. Therefore, when you remove the excess oil (until only air is sucked) the tool will allow you to automatically reach the level required, **this is because of the gauge or the end of the filler pipe**, shown by the blue arrow in Fig. 2.

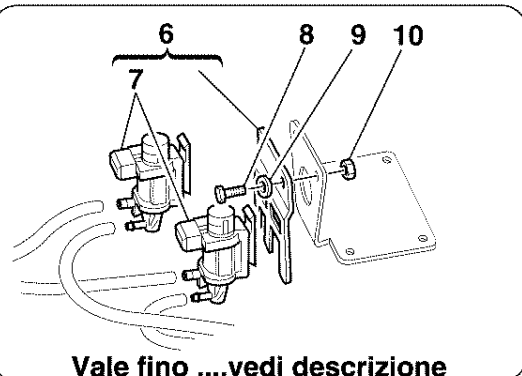


- › If the **level is low** (this condition will be first signalled by the relevant warning light on the instrument panel), **top up following the above described procedures**.
- › Screw the cap back on tightly.

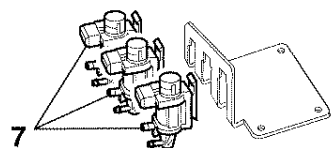
IMPORTANT: The dipstick attached to the oil tank cap must no longer be used.



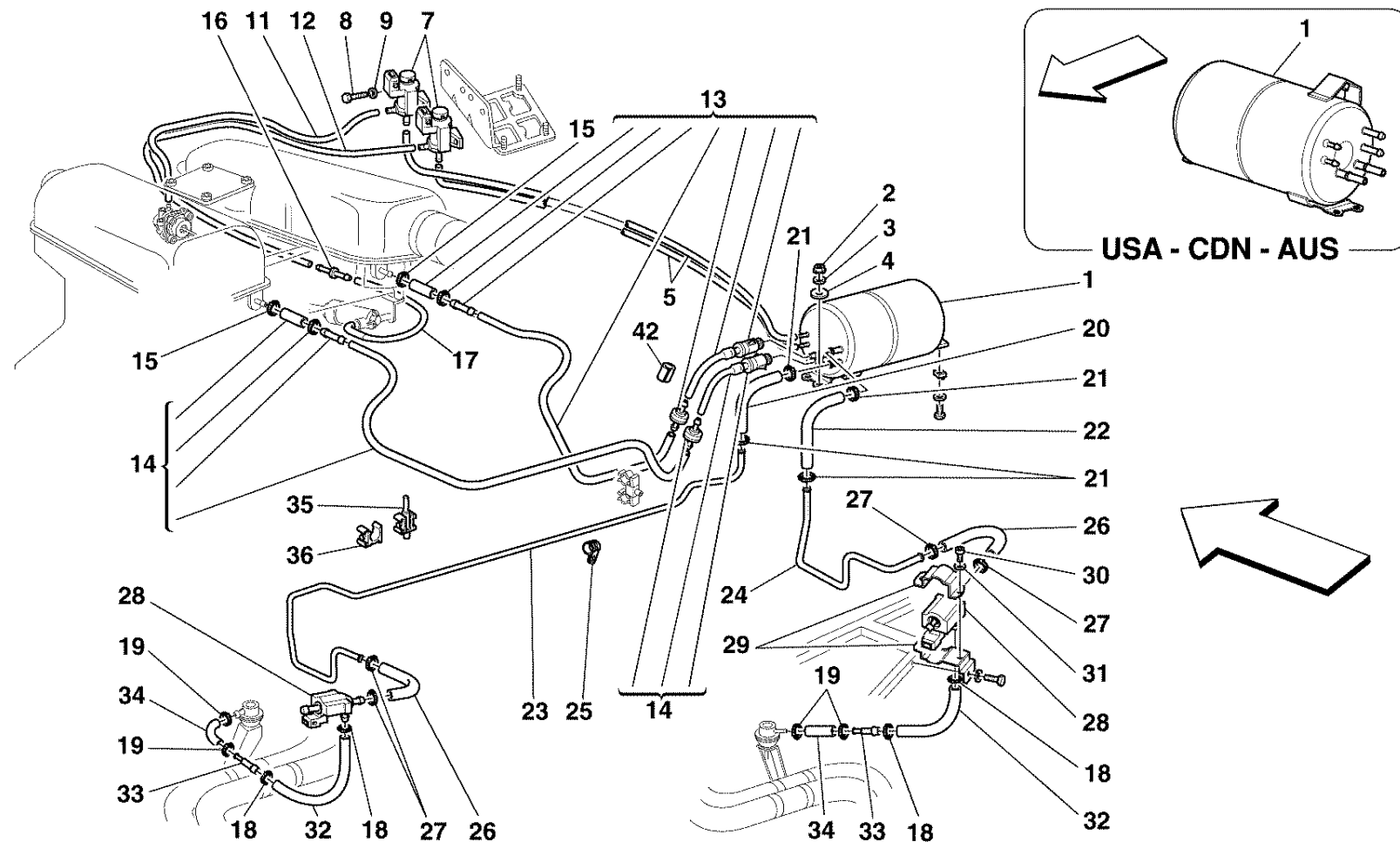
Vale per USA e CDN dall' Ass. Nr. 44739
Valid for USA and CDN from Ass. Nr. 44739



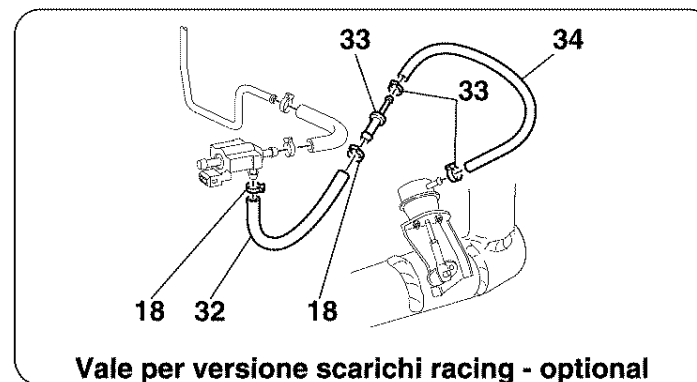
Vale finovedi descrizione
Valid tillsee description



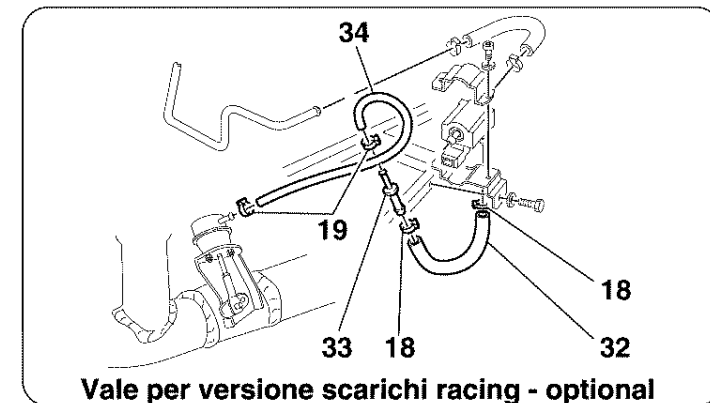
Vale per USA e CDN fino all' Ass. Nr. 44738
Valid for USA and CDN till Ass. Nr. 44738



USA - CDN - AUS

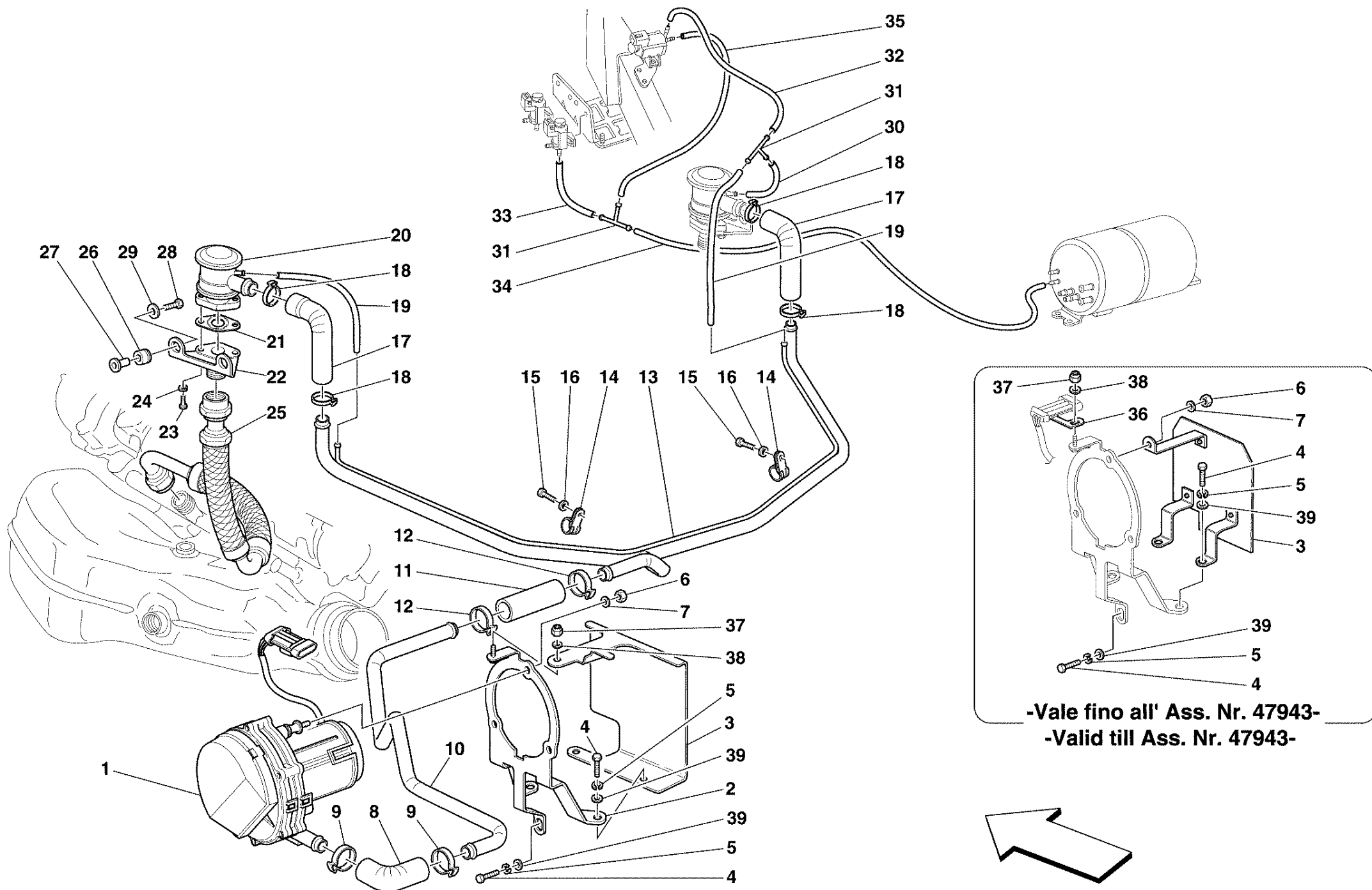


Vale per versione scarichi racing - optional
Valid for racing exhaust version - optional

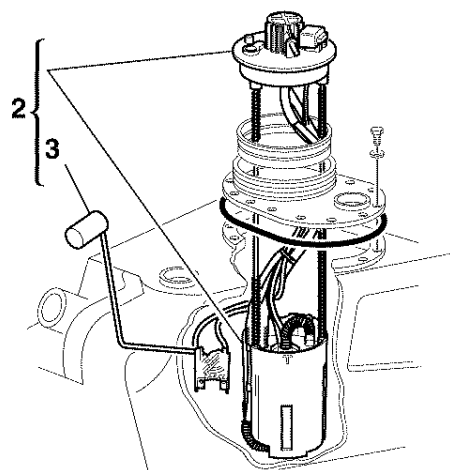
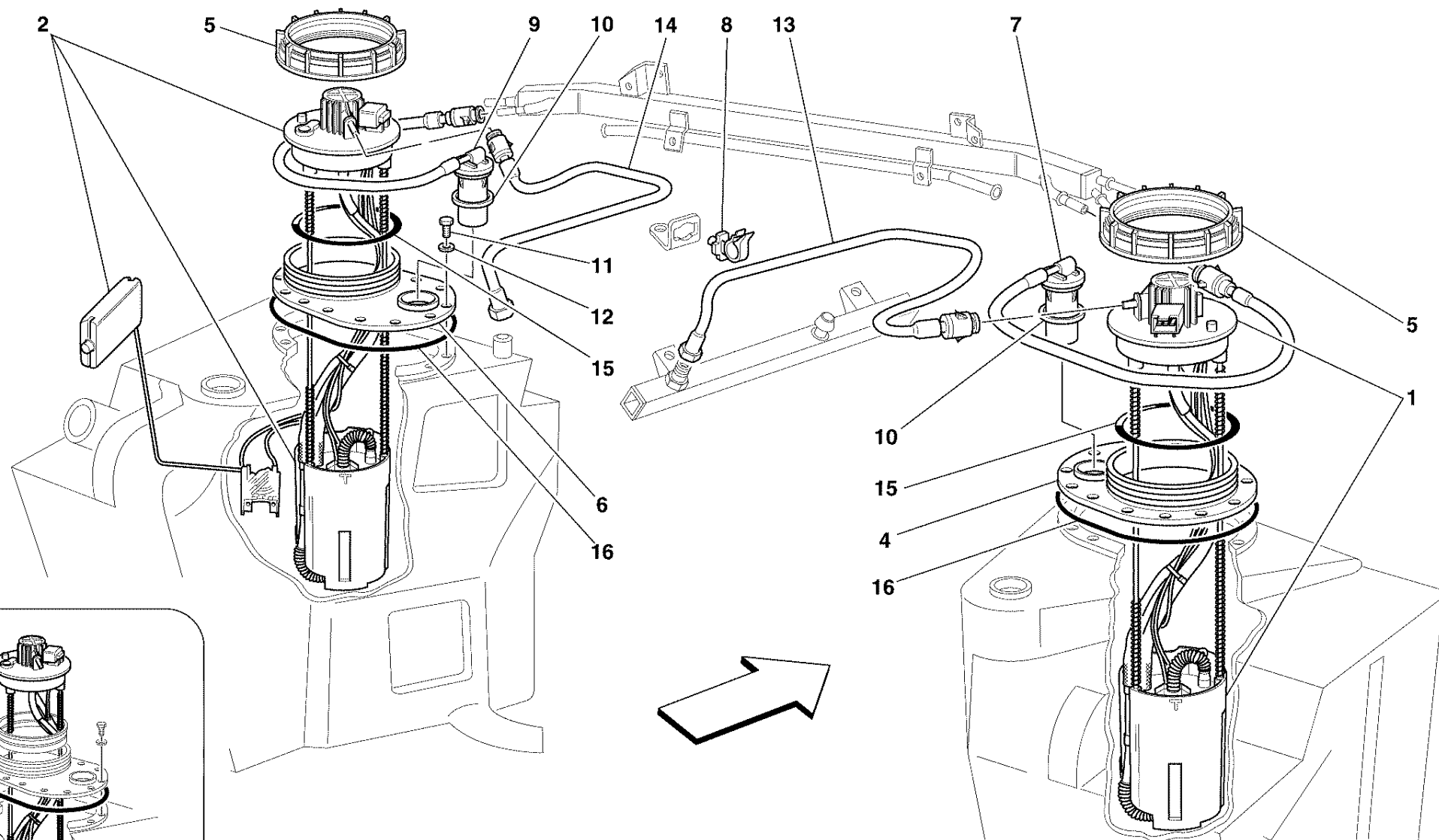


Vale per versione scarichi racing - optional
Valid for racing exhaust version - optional

1	177060	1	DEPRESSION ACCUMULATION TANK -Not for USA, CDN and AUS- -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till stock exhaustion-
1	180315	1	DEPRESSION ACCUMULATION TANK -Valid for USA, CDN and AUS- -Valid till stock exhaustion-
1	195645	1	DEPRESSION ACCUMULATION TANK
2	14059211	2	NUT
3	12601274	2	WASHER
4	12639724	2	WASHER
5	122760	2	PIPE FROM TANK TO SOLENOID VALVE
6	159176	1	SMALL PLATE WITH SOLENOID VALVE -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till car Ass. Nr. 44736-
7	159177	2	SOLENOID VALVE -Q.ty 3 for USA MY 2000,2001,2002,2003 and CDN MY 2000,2001,2002,2003- -For cars not USA and CDN valid till Ass. Nr. 44736- -For cars USA and CDN valid till Ass. Nr. 44738-
7	184363	2	SOLENOID VALVE -Q.ty 3 for USA MY 2002,2003,2004 and CDN MY 2002,2003,2004- -For cars not USA and CDN valid from Ass. Nr. 44737- -For cars USA and CDN valid from Ass. Nr. 44739-
8	10977624	2	SCREW -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till car Ass. Nr. 44736-
8	14304124	4	SCREW -Q.ty 6 for USA MY 2002,2003,2004 and CDN MY 2002,2003,2004- -For cars not USA and CDN valid from Ass. Nr. 44737- -For cars USA and CDN valid from Ass. Nr. 44739-
9	12604174	2	WASHER -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till car Ass. Nr. 44736-
9	12601174	4	WASHER -Q.ty 6 for USA MY 2002,2003,2004 and CDN MY 2002,2003,2004- -For cars not USA and CDN valid from Ass. Nr. 44737- -For cars USA and CDN valid from Ass. Nr. 44739-
10	15896470	2	NUT -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-



11	169692	1	-Valid till car Ass. Nr. 44736- PIPE FROM SOLENOID VALVE TO PNEUMATIC CAPSULE
12	115665	1	PIPE FROM SOLENOID VALVE TO UNION -Valid till stock exhaustion-
12	127893	1	PIPE FROM SOLENOID VALVE TO UNION -Valid after stock exhaustion of 115665-
13	178420	1	COMPLETE R.H. DEPRESSION PIPE
14	178421	1	COMPLETE L.H. DEPRESSION PIPE
15	13434670	2	SCREW COLLAR
16	178491	1	UNION
17	168248	1	RUBBER HOSE
18	13432070	4	SCREW COLLAR
19	157990	4	SCREW COLLAR
20	178554	1	RUBBER HOSE
21	13432070	4	SCREW COLLAR
22	178552	1	RUBBER HOSE
23	178503	1	L.H. PIPE
24	178497	1	R.H. PIPE
25	10441190	4	BRACKET WITH SHEATH
26	178552	2	RUBBER HOSE
27	13432070	4	SCREW COLLAR
28	178309	2	SOLENOID VALVE
29	178515	2	SOLENOID VALVE SUPPORT
30	14302924	4	SCREW
31	127492	4	WASHER
32	178552	2	RUBBER HOSE
33	178369	2	UNION
34	147121	2	RUBBER HOSE
34	147120	2	RUBBER HOSE -Valid for racing exhaust version- -Optional-
35	140162	1	ANCHORAGE FOR CLIP
36	140130	1	FLEXIBLE CLIP
37	189982	1	SMALL PLATE FOR SOLENOID VALVE -Valid for USA MY 2002,2003 and CDN MY 2002,2003,2004- -Valid from car Ass. Nr. 44739-
38	10441390	2	BRACKET WITH SHEATH
39	10902424	2	SCREW
40	127494	2	WASHER
41	12644424	2	WASHER
42	152913	1	RUBBER HOSE

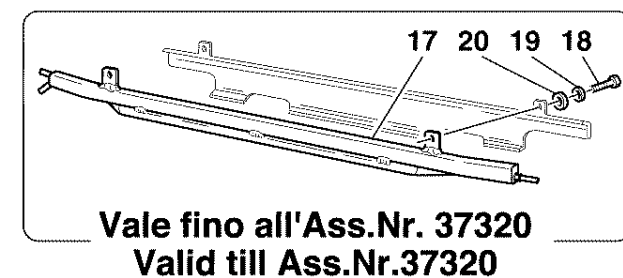
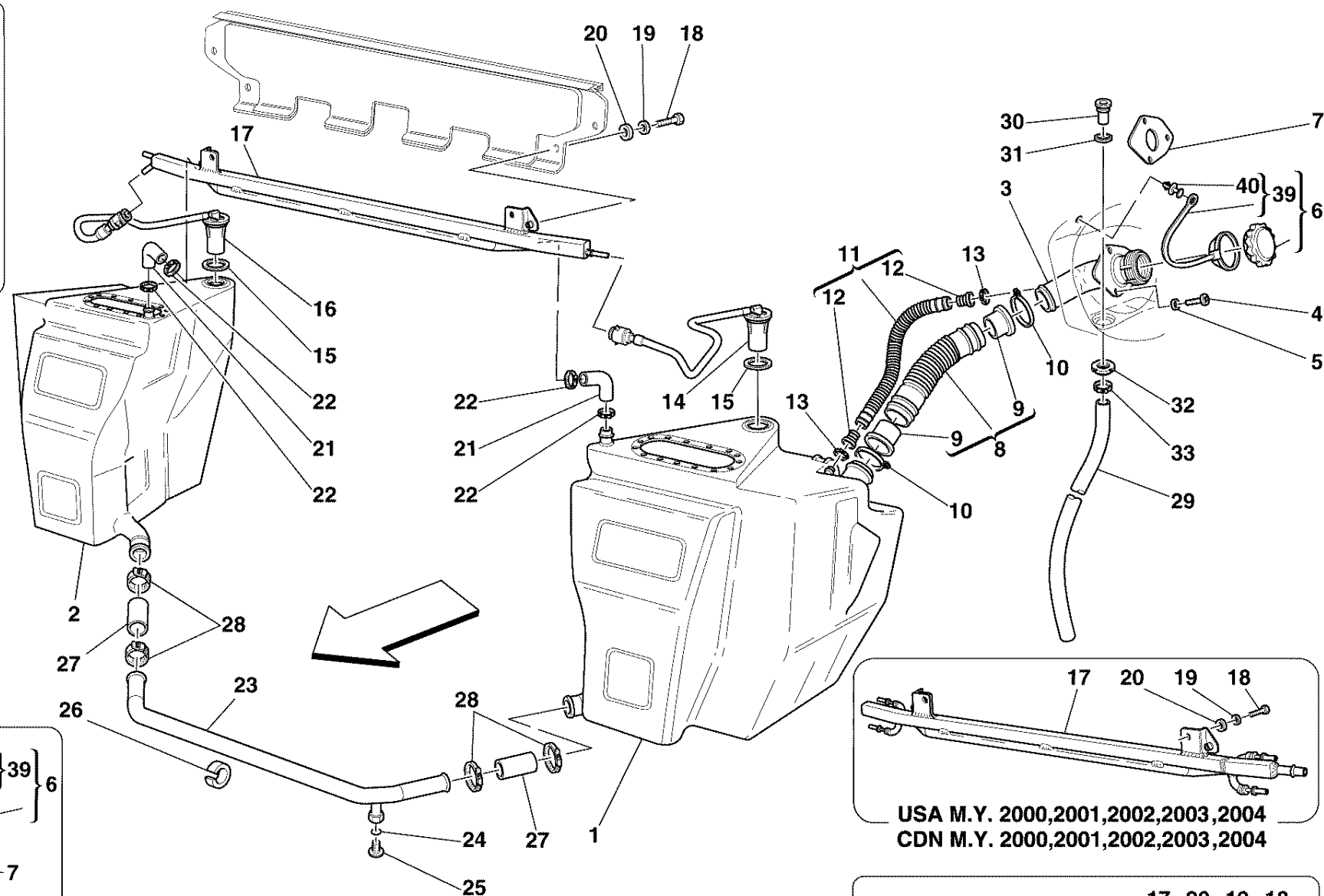
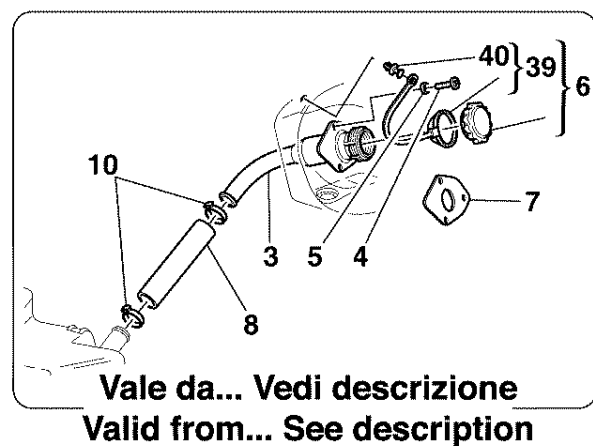
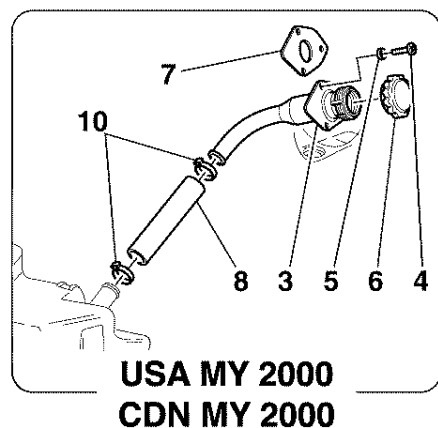
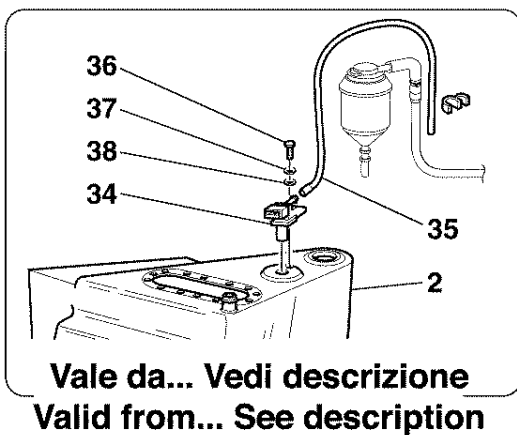


Galleggiante cilindrico
Cylindrical float

F131_C: 360modena - 10 - FUEL PUMPS AND PIPES

1	164146	1	R.H. COMPLETE FUEL PUMP
2	170947	1	L.H. COMPLETE FUEL PUMP AND FUEL LEVEL INDICATOR CONTROL -Not as spare part- -Replaced by 193723-
2	193723	1	L.H. COMPLETE FUEL PUMP AND FUEL LEVEL INDICATOR CONTROL -For cylindrical float- -Valid till stock exhaustion-
2	199120	1	L.H. COMPLETE FUEL PUMP AND FUEL LEVEL INDICATOR CONTROL -For oval section float-
3	177233	1	FUEL LEVEL INDICATOR -Not as spare part- -Replaced by 194140-
3	194140	1	FUEL LEVEL INDICATOR -Cylindrical float- -Valid for l.h. fuel pump 193723 ref. 2-
4	176579	1	R.H. PUMP SUPPORT COVER -For cars till Ass. Nr. 36737 use cover 176579 and valve 183256-
5	170945	2	RING NUT
6	176580	1	L.H. PUMP SUPPORT COVER
7	180381	1	COMPLETE R.H. FLOAT VALVE -Not as spare part- -For cars till Ass. Nr. 36737 use cover 176579 and valve 183256- -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
7	183256	1	COMPLETE R.H. FLOAT VALVE -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
7	183255	1	COMPLETE R.H. FLOAT VALVE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till stock exhaustion-
7	196483	1	COMPLETE R.H. FLOAT VALVE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
8	178430	4	CLIP
9	180383	1	COMPLETE L.H. FLOAT VALVE -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
9	179627	1	COMPLETE L.H. FLOAT VALVE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till stock exhaustion-
9	196480	1	COMPLETE L.H. FLOAT VALVE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-

10	169938	2	GASKET
			-Valid till stock exhaustion-
10	195049	2	GASKET
11	10977624	30	SCREW
12	12601174	30	WASHER
13	178445	1	R.H. CONNECTION PIPE
14	178753	1	L.H. CONNECTION PIPE
15	170946	2	GASKET
16	171795	2	O.R. GASKET

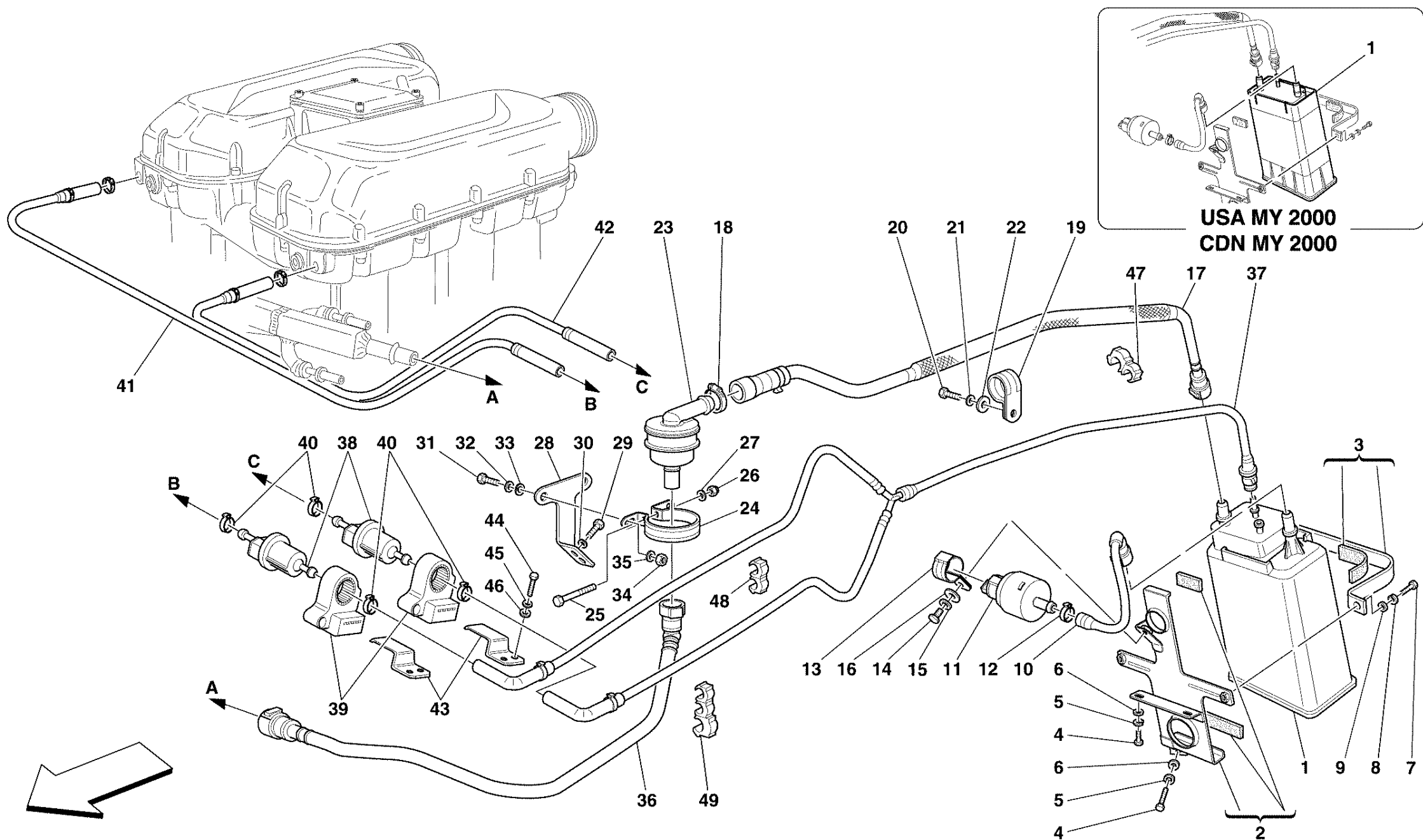


1	175418	1	L.H. FUEL TANK -Not as spare part replaced by 181270-
1	181270	1	L.H. FUEL TANK -Replaces 175418- -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
1	179624	1	L.H. FUEL TANK -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
2	175419	1	R.H. FUEL TANK -Not for USA, CDN and AUS- -Not as spare part replaced by 181326-
2	181326	1	R.H. FUEL TANK -Valid for EU GS not F1 and J not F1 till car Ass.Nr. 39158- -Valid for GB not F1 till car Ass.Nr. 39144- -Valid for EU GS F1 and J F1 till car Ass.Nr. 39159- -Valid for GB F1 till car Ass.Nr. 39148- -Not for USA, CDN and AUS-
2	181338	1	R.H. FUEL TANK -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for USA, CDN and AUS-
3	177638	1	UNION -Valid for catalyzed cars- -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
3	180059	1	UNION -Valid for not catalyzed cars- -Not for USA, CDN and AUS-
3	185264	1	UNION -Valid for USA MY 2000 and CDN MY 2000- -Not for USA MY 2001,2002,2003,2004 and CDN MY 2001,2002,2003,2004- -Not as spare part- -Replaced by 187008-
3	187008	1	UNION -Valid for USA MY 2001,2002,2003,2004 and CDN MY 2001,2002,2003,2004-
4	64686900	3	SCREW
5	12601274	3	WASHER -Not as spare part- -Replaced by 10615774-
5	10615774	3	WASHER
6	177572	1	COMPLETE PLUG -Not as spare part replaced by 180118-
6	180118	1	COMPLETE PLUG -Valid for EU GS not F1 and J not F1 till car Ass.Nr. 39158-

			-Valid for GB not F1 till car Ass.Nr. 39144- -Valid for EU GS F1 and J F1 till car Ass.Nr. 39159- -Valid for GB F1 till car Ass.Nr. 39148- -Valid for AUS till Ass. Nr. 41559- -Not for USA MY 2001,2002,2003,2004 and CDN MY 2001,2002,2003,2004-
6	185777	1	COMPLETE PLUG -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for AUS from Ass. Nr. 41560- -Valid for USA MY 2001,2002,2003,2004 and CDN MY 2001,2002,2003,2004-
7	172899	1	GASKET
8	177640	1	UNION-TANK CONNECTING PIPE -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
8	178665	1	UNION-TANK CONNECTING PIPE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
9	141033	2	GASKET -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
10	165398	2	SCREW COLLAR -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Not as spare part- -Replaced by 13000890-
10	13000890	2	SCREW COLLAR -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
10	180957	2	SCREW COLLAR -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
11	174101	1	VENT PIPE FROM TANK TO UNION -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
12	142106	2	GASKET -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
13	164015	2	SCREW COLLAR -Not for USA MY 2000,2001,2002,2003 and CDN MY 2000,2001,2002,2003-
14	180384	1	L.H. VALVE WITH PIPE -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
14	180606	1	L.H. VALVE WITH PIPE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till stock exhaustion-

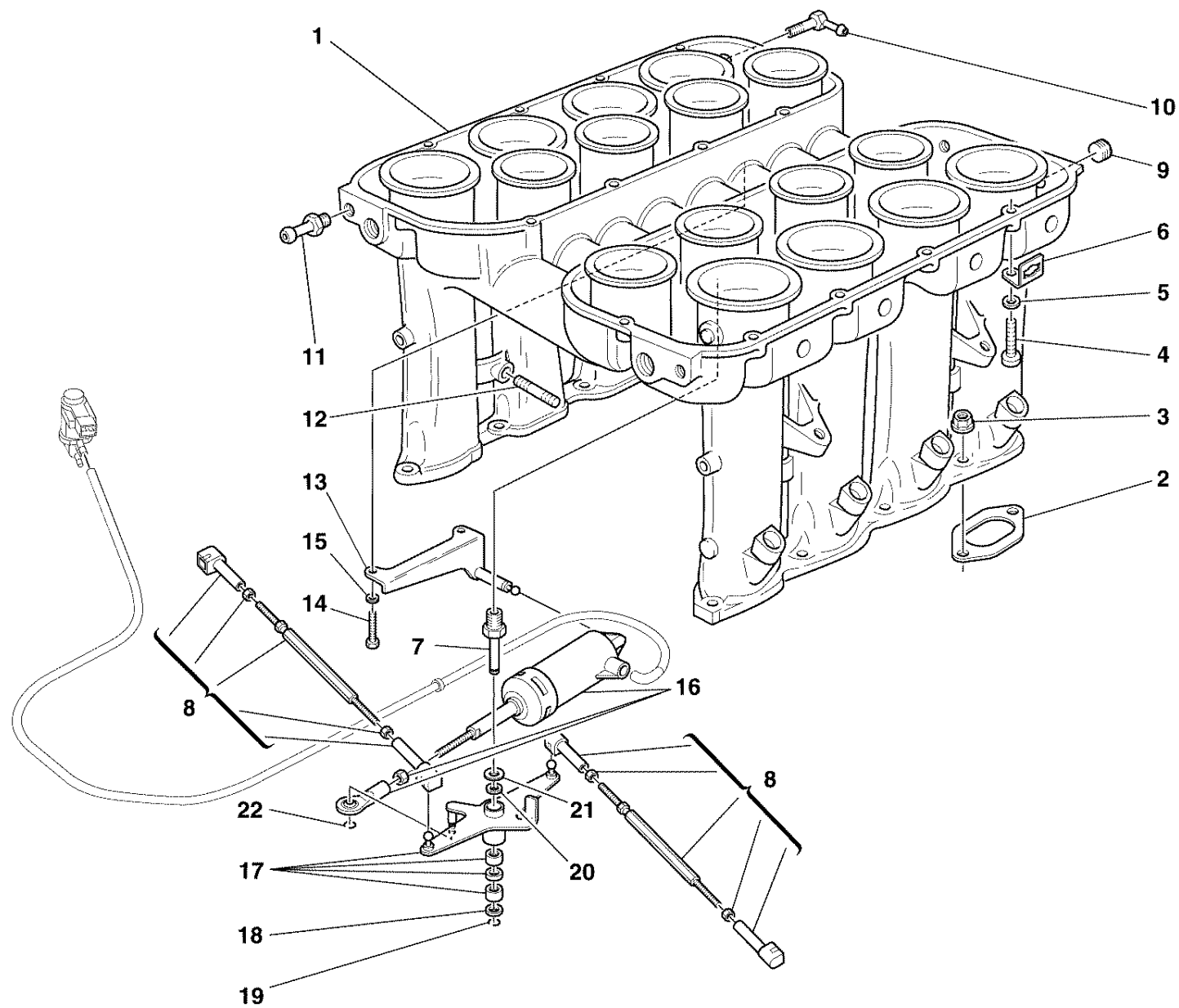
14	196481	1	L.H. VALVE WITH PIPE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
15	169938	2	GASKET -Valid till stock exhaustion-
15	195049	2	GASKET
16	180382	1	R.H. VALVE WITH PIPE -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
16	180608	1	R.H. VALVE WITH PIPE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till stock exhaustion-
16	196482	1	R.H. VALVE WITH PIPE -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
17	179511	1	DISAREATOR -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid till Ass. Nr. 37320-
17	181989	1	DISAREATOR -Not for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004- -Valid from Ass. Nr. 37321-
17	182964	1	DISAREATOR -Valid for USA MY 2000,2001,2002,2003,2004 and CDN MY 2000,2001,2002,2003,2004-
18	10902411	2	SCREW
19	127494	2	WASHER
20	10523424	2	WASHER
21	166602	2	SLEEVE
22	13000390	4	SCREW COLLAR
23	178347	1	TANKS CONNECTION PIPE -Not as spare part replaced by 181695-
23	181695	1	TANKS CONNECTION PIPE -Replaces 178347-
24	123622	1	GASKET
25	148045	1	THREADED PLUG
26	177437	6	RUBBER THICKNESS
27	114277	2	RUBBER HOSE
28	168220	4	SCREW COLLAR
29	180067	1	WATER EXHAUST TUBE -Valid till stock exhaustion-
29	193286	1	WATER EXHAUST TUBE -Valid after stock exhaustion of 180067-
30	64872000	1	SLEEVE
31	65064500	1	GASKET
32	104919	1	RING NUT
33	177553	1	CLAMP
34	179137	1	FUEL PRESSURE SENSOR -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160-

35	115148	1	-Valid for GB F1 from car Ass.Nr. 39149- -Valid for USA, CDN and AUS- RUBBER HOSE -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for USA, CDN and AUS-
36	10977714	1	SCREW -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for USA, CDN and AUS-
37	12601174	1	WASHER -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for USA, CDN and AUS-
38	12637824	1	WASHER -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for USA, CDN and AUS-
39	186866	1	COMPLETE RING -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for AUS from Ass. Nr. 41560- -Valid for USA MY 2001,2002,2003,2004 and CDN MY 2001,2002,2003,2004-
40	186172	1	RETAINER FOR STRING -Valid for EU GS not F1 and J not F1 from car Ass.Nr. 39159- -Valid for GB not F1 from car Ass.Nr. 39145- -Valid for EU GS F1 and J F1 from car Ass.Nr. 39160- -Valid for GB F1 from car Ass.Nr. 39149- -Valid for AUS from Ass. Nr. 41560- -Valid for USA MY 2001,2002,2003 and CDN MY 2001,2002,2003-



1	178536	1	FUEL VAPOR FILTER -Not for USA MY 2001,2002,2003,2004 and CDN MY 2001,2002,2003,2004-
1	186316	1	FUEL VAPOR FILTER -Valid for USA MY 2001, 2002,2003,2004 and CDN MY 2001,2002,2003,2004-
2	180615	1	FRAME FASTENING FILTER BRACKET
3	180636	1	VAPOR FILTER FIXING CLAMP
4	10902224	3	SCREW
5	127494	3	WASHER
6	12639724	3	WASHER
7	10902124	2	SCREW
8	127494	2	WASHER
9	12639724	2	WASHER
10	178540	1	COMPLETE TUBE
11	179138	1	ON-OFF VALVE
12	13432070	1	SCREW COLLAR
13	181607	1	BRACKET WITH SHEATH
14	10979414	1	SCREW
15	12644424	1	WASHER
16	127494	1	WASHER
17	178534	1	COMPLETE TUBE
18	13430770	1	SCREW COLLAR
19	10442190	1	BRACKET WITH SHEATH
20	10902124	1	SCREW
21	127494	1	WASHER
22	12643724	1	WASHER
23	180573	1	ANTI FLOWING BACK VALVE
24	180622	1	BRACKET
25	10902834	1	SCREW
26	102741	1	NUT
27	12639724	1	WASHER
28	178532	1	BRACKET
29	10902224	2	SCREW
30	12644424	2	WASHER
31	10902024	2	SCREW
32	127494	2	WASHER
33	12644424	2	WASHER
34	10720124	2	NUT
35	12644424	2	WASHER
36	178531	1	COMPLETE TUBE
37	179425	1	COMPLETE TUBE
38	162412	2	WASHING VALVE
39	174623	2	BUFFER FOR SUPPORT
40	13432070	4	SCREW COLLAR
41	180609	1	PIPE TO R.H. PLENUM CHAMBER
42	180610	1	PIPE TO L.H. PLENUM CHAMBER
43	174708	2	BRACKET
44	10979434	2	SCREW
45	127494	2	WASHER
46	12644424	2	WASHER

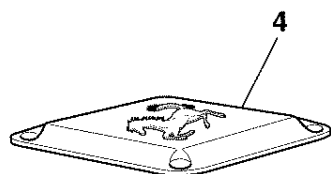
47	180972	1	FLEXIBLE CLIP
48	180968	1	FLEXIBLE CLIP
49	180969	1	FLEXIBLE CLIP



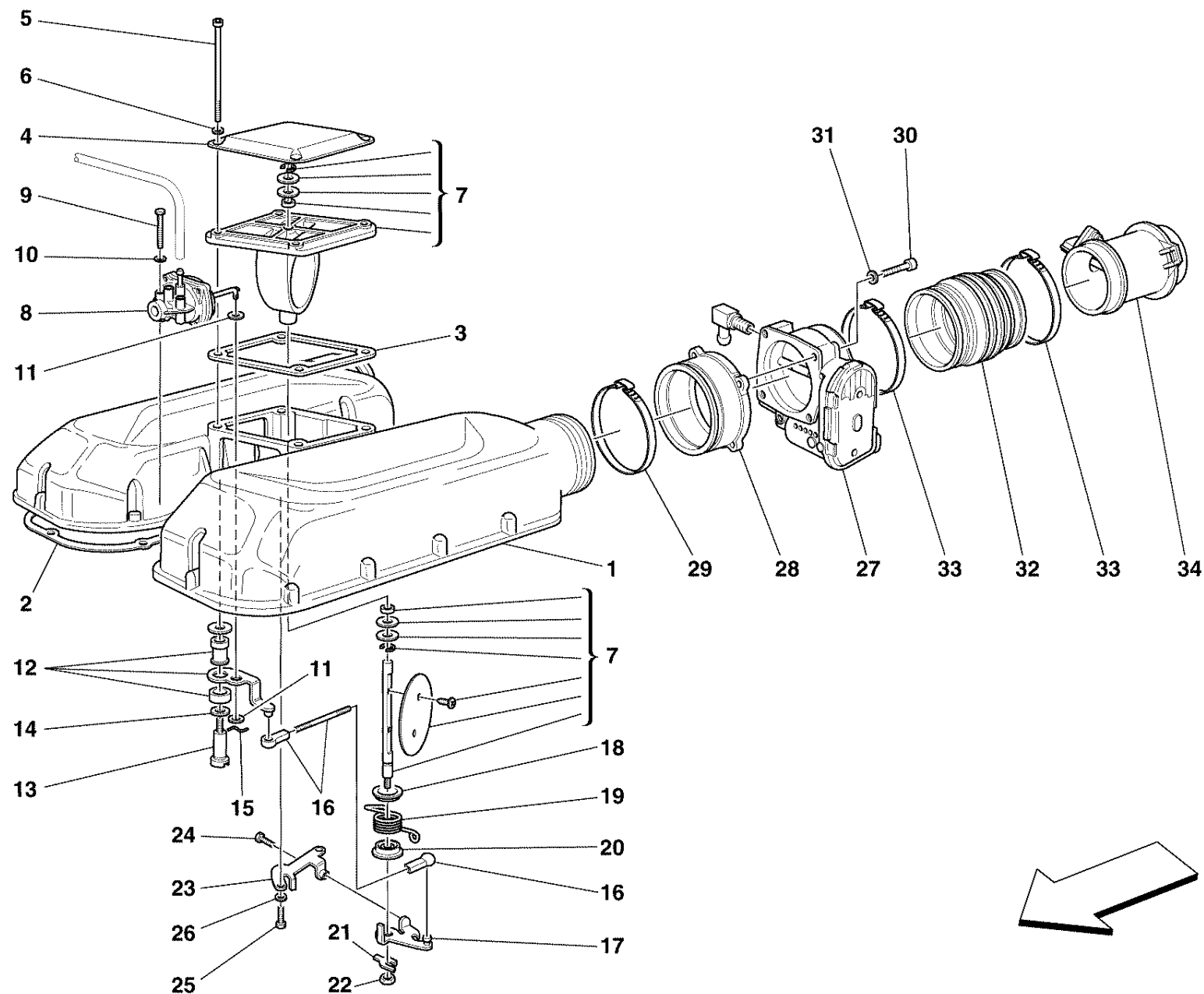
1	171244	1	SUCTION MANIFOLD -Valid till stock exhaustion-
1	182315	1	SUCTION MANIFOLD -Valid after stock exhaustion of 171244-
1	198918	1	SUCTION MANIFOLD -Valid for carbon version- -Optional-
2	172544	8	GASKET
3	159601	16	NUT
4	14305424	16	SCREW
5	11197774	16	WASHER
6	178844	4	PIPES FIXING BRACKET
7	177602	1	PIN
8	177554	2	COMPLETE TIE ROD
9	182095	2	THREADED PLUG -Q.ty 3 from Ass. Nr. 49528-
10	179051	2	UNION
11	182094	4	UNION
12	182696	4	STUD
13	168253	1	BRACKET FOR ACTUATOR
14	182097	2	SCREW
15	177647	2	WASHER
16	168275	1	PNEUMATIC ACTUATOR
17	182099	1	COMPLETE LEVER
18	177633	1	WASHER
19	177669	1	SEEGER RING
20	177618	4	WASHER
21	182098	1	WASHER
22	177624	1	SEEGER RING

OPTIONAL

1	175043	1	COMPLETE FILTER BOX
1	209636	1	COMPLETE FILTER BOX -Valid for carbon version- -Optional-
2	170689	2	AIR FILTER -Not as spare part- -Replaced by 190880-
2	190880	2	AIR FILTER
3	157757	8	SCREW -Not as spare part- -Replaced by 193276-
3	193276	8	SCREW
4	142202	6	PAD
5	15896214	6	NUT
6	12643724	6	WASHER
7	176924	1	SLEEVE
8	178439	1	AIR CONVEYOR
9	178293	1	RUBBER THICKNESS
10	14059211	1	NUT
11	12643724	1	WASHER
12	63580500	2	COMPLETE GRILL
13	13274211	4	SCREW
14	12638124	4	WASHER
15	155781	3	ANCHORAGE
16	140130	5	CLIP
17	157709	4	CLIP
18	200813	1	STUD -Valid for racing exhaust version- -Optional-
19	10441790	1	BRACKET WITH SHEATH -Valid for racing exhaust version- -Optional-
20	10441590	1	BRACKET WITH SHEATH -Valid for racing exhaust version- -Optional-
21	10441490	1	BRACKET WITH SHEATH -Valid for racing exhaust version- -Optional-



Vale per versione carbonio - optional
Valid for carbon version - optional

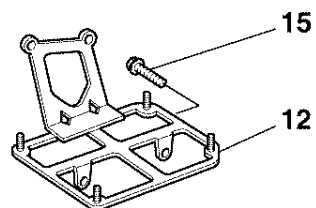
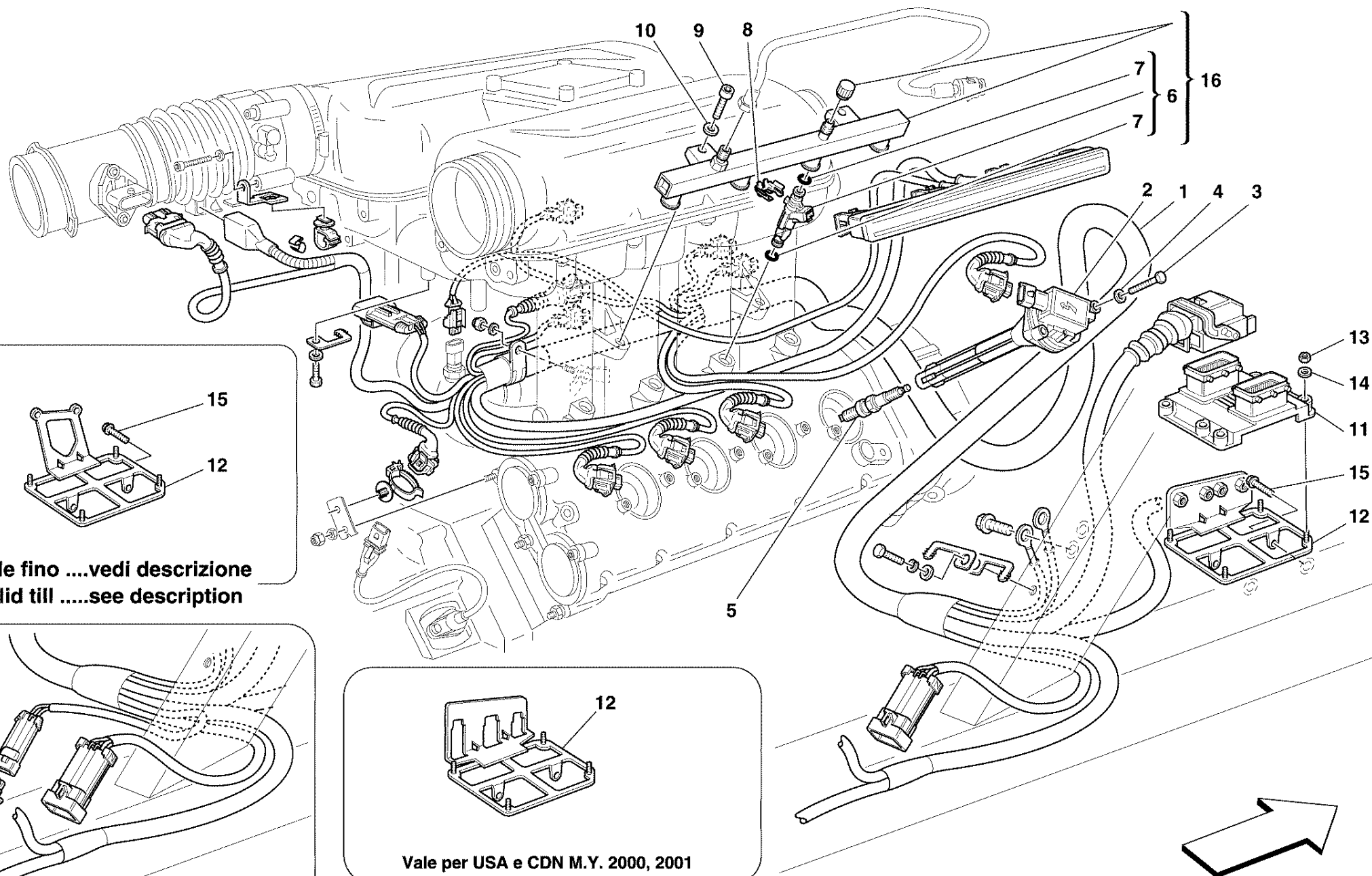


1	182085	1	SUCTION MANIFOLD COVER -Not as spare part- -Replaced by 188315-
1	179752	1	SUCTION MANIFOLD COVER -Not as spare part- -With complete suction manifold cover 182085-
1	188315	1	SUCTION MANIFOLD COVER -Not as spare part- -Replaced by 191873-
1	191873	1	SUCTION MANIFOLD COVER
1	182461	1	SUCTION MANIFOLD COVER -Not as spare part- -With complete suction manifold cover 188315-
1	186284	1	SUCTION MANIFOLD COVER -Not as spare part- -With complete suction manifold cover 191873-
2	174192	1	R.H. GASKET
2	168145	1	L.H. GASKET
3	168205	1	COMPENSATION DUCTING GASKET
4	176106	1	COMPENSATION DUCTING COVER
4	198215	1	COMPENSATION DUCTING COVER -Valid for carbon version- -Optional-
5	176154	4	SCREW
6	182086	4	WASHER
7	182092	1	COMPLETE COMPENSATION DUCTING
8	136815	1	PNEUMATIC CAPSULE
9	177644	2	SCREW
10	177646	2	WASHER
11	182087	2	WASHER
12	182089	1	LEVER SET
13	177600	1	PIN
14	182093	1	WASHER
15	182088	1	PIN
16	177565	1	COMPLETE TIE ROD
17	177560	1	COMPLETE IDLING LEVER
18	177626	1	BUSH FOR SPRING
19	177578	1	SPRING
20	177586	1	BUSHING
21	177639	1	SAFETY SMALL PLATE
22	182091	1	NUT
23	177564	1	SUPPORT

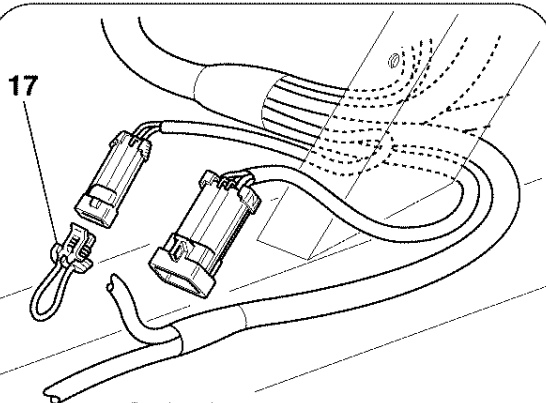
24	182090	1	SCREW
25	177652	2	SCREW
26	177651	2	WASHER
27	171716	2	THROTTLE HOLDER
28	177132	2	SPACER FOR THROTTLE HOLDER
29	177981	2	SPECIAL CLAMP
30	14305824	8	SCREW
31	12581474	8	WASHER
32	160701	2	SLEEVE
33	177982	4	SPECIAL CLAMP
34	171707	2	AIR FLOW METER



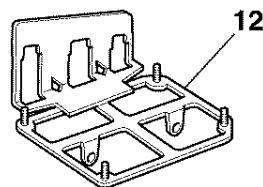
1	180220	1	ACCELERATOR PEDAL -Valid till stock exhaustion-
1	196180	1	ACCELERATOR PEDAL
2	171464	1	ACCELERATOR PEDAL SUPPORT -Not as spare part- -Replaced by 185452-
2	185452	1	ACCELERATOR PEDAL SUPPORT
3	101677	2	ROLLER BEARING
4	157115	2	WASHER
5	175351	1	RETUTN SPRING FOR PEDAL
6	171468	1	ROLLER CAGE RACE
7	10977524	1	SCREW
8	12601174	1	WASHER
9	171466	1	PUSH ROD -Not for GD-
9	181258	1	PUSH ROD -Valid for GD-
10	173999	1	BALL JOINT HEAD
11	174001	2	CLIP
12	15896470	1	NUT
13	105586	1	L.H. THREADED NUT
14	174000	1	BALL JOINT HEAD
15	170038	1	ACCELERATOR PEDAL POTENTIOMETER
16	102948	2	NUT
17	10519424	2	WASHER
18	170925	1	BRACKET FOR CONNECTOR FIXING
19	14071911	1	SCREW
20	14371274	1	BRACKET
21	11500324	2	STUD
22	16043621	1	SCREW
23	16102314	1	NUT
24	10902624	3	SCREW
25	127494	3	WASHER
26	14496424	3	WASHER
27	65709100	1	ACCELERATOR PEDAL COVER -Not for GD-
27	65711900	1	ACCELERATOR PEDAL COVER -Valid for GD-
28	65752800	2	SCREW



Vale finovedi descrizione
Valid tillsee description



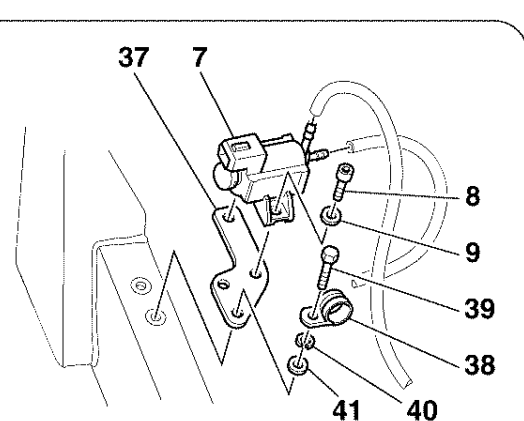
Soluzione superata
Old solution



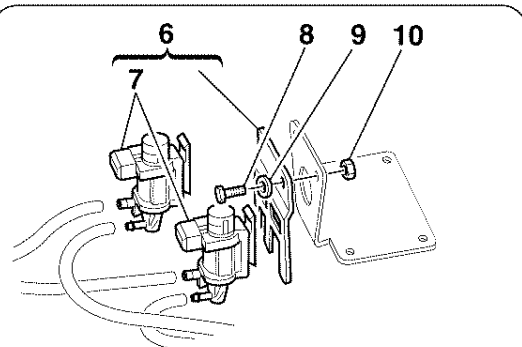
Vale per USA e CDN M.Y. 2000, 2001
No per USA e CDN M.Y. 2002, 2003, 2004
Valid for USA and CDN M.Y. 2000, 2001
Not for USA and CDN M.Y. 2002, 2003, 2004

1	8.60.018	8.60.018.0	1,5	Rh. Side Engine Ignition Cables - Replace	engine on bench	all equipments
1	8.60.019	8.60.019.0	1,5	Lh. Side Engine Ignition Cables - Replace	engine on bench	all equipments
1	8.10.047	8.60.018.0	1,5	Rh. Side Engine Ignition Cable Connector for CU - Replace	engine on bench	all equipments
1	8.10.048	8.60.019.0	1,5	Lh. Side Engine Ignition Cable Connector for CU - Replace	engine on bench	all equipments
2	8.10.036	8.10.036.0	0,1	Ignition Coil - Replace of one coil	complete car	all equipments
3	8.10.040	8.10.036.0	0,1	Ignition Coil Screw - Replace	complete car	all equipments
4	8.10.041	8.10.036.0	0,1	Ignition Coil Washer - Replace	complete car	all equipments
5	8.10.030	8.10.030.0	0,4	Spark plugs - Replace of 8	complete car	all equipments
6	1.40.085	1.40.085.0	0,1	Rh. Electroinjector - R. & R. or Replace (of one)	complete car	all equipments
6	1.40.085	1.40.085.1	0,2	Rh. Electroinjectors - R. & R. or Replace	complete car	all equipments
6	1.40.199	1.40.199.0	0,1	Lh. Electroinjector - R. & R. or Replace of one	complete car	all equipments
6	1.40.199	1.40.199.1	0,2	Lh. Electroinjectors - R. & R. or Replace	complete car	all equipments
6	1.00.020	1.00.020.0	0,2	Injection - Pressures check (of one engine side)	complete car	all equipments
7	1.40.177	1.40.085.0	0,1	Electro-injector Gasket - Replace	complete car	all equipments
7	1.40.177	1.40.085.1	0,2	Electro-injector Gasket - Replace	complete car	all equipments
7	1.40.177	1.40.199.0	0,1	Electro-injector Gasket - Replace	complete car	all equipments
7	1.40.177	1.40.199.1	0,2	Electro-injector Gasket - Replace	complete car	all equipments
8	1.40.178	1.40.085.0	0,1	Spring Retaining Clip - Replace	complete car	all equipments
8	1.40.178	1.40.085.1	0,2	Spring Retaining Clip - Replace	complete car	all equipments
8	1.40.178	1.40.199.0	0,1	Spring Retaining Clip - Replace	complete car	all equipments
8	1.40.178	1.40.199.1	0,2	Spring Retaining Clip - Replace	complete car	all equipments
9	1.40.176	1.40.085.0	0,1	Fixing Screw Injector Pipe - Replace	complete car	all equipments
9	1.40.176	1.40.085.1	0,2	Fixing Screw Injector Pipe - Replace	complete car	all equipments
9	1.40.176	1.40.199.0	0,1	Fixing Screw Injector Pipe - Replace	complete car	all equipments
9	1.40.176	1.40.199.1	0,2	Fixing Screw Injector Pipe - Replace	complete car	all equipments
10	1.40.439	1.40.085.0	0,1	Fixing Washer Injector Pipe - Replace	complete car	all equipments
10	1.40.439	1.40.085.1	0,2	Fixing Washer Injector Pipe - Replace	complete car	all equipments
10	1.40.439	1.40.199.0	0,1	Fixing Washer Injector Pipe - Replace	complete car	all equipments
10	1.40.439	1.40.199.1	0,2	Fixing Washer Injector Pipe - Replace	complete car	all equipments
11	8.10.001	8.10.001.0	0,3	Rh. Ignition Control Unit - R. & R. or Replace	complete car	all equipments
11	8.10.002	8.10.002.0	0,3	Lh. Ignition Control Unit - R. & R. or Replace	complete car	all equipments
11	1.00.025	1.00.025.0	0,3	Ignition/injection - Check with SD-2	complete car	all equipments
12	8.10.042	8.10.001.0	0,3	Ignition Control Unit Supporting Bracket - Replace	complete car	all equipments
12	8.10.044	8.10.002.0	0,3	Ignition Control Unit Supporting Bracket - Replace	complete car	all equipments
13	8.10.051	8.10.001.0	0,3	Ignition Control Unit Supporting Bracket Nut - Replace	complete car	all equipments
13	8.10.051	8.10.002.0	0,3	Ignition Control Unit Supporting Bracket Nut - Replace	complete car	all equipments
14	8.10.092	8.10.001.0	0,3	Ignition Control Unit Supporting Bracket Washer - Replace	complete car	all equipments
14	8.10.092	8.10.002.0	0,3	Ignition Control Unit Supporting Bracket Washer - Replace	complete car	all equipments
15	8.10.046	8.10.001.0	0,3	Ignition Control Unit Supporting Bracket Screw - Replace	complete car	all equipments
15	8.10.046	8.10.002.0	0,3	Ignition Control Unit Supporting Bracket Screw - Replace	complete car	all equipments
16	1.40.092	1.40.085.0	0,1	Rh. Side Engine Electro-Injectors Pipe - Replace	complete car	all equipments
16	1.40.092	1.40.085.1	0,2	Rh. Side Engine Electro-Injectors Pipe - Replace	complete car	all equipments
16	1.40.433	1.40.199.0	0,1	Lh. Side Engine Electro-Injectors Pipe - Replace	complete car	all equipments
16	1.40.433	1.40.199.1	0,2	Lh. Side Engine Electro-Injectors Pipe - Replace	complete car	all equipments
17	1.40.434	*		Emergency Switch Bracket		

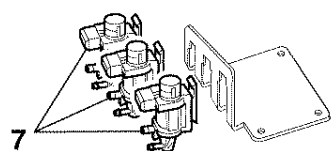
* : The operation for the part is not available.



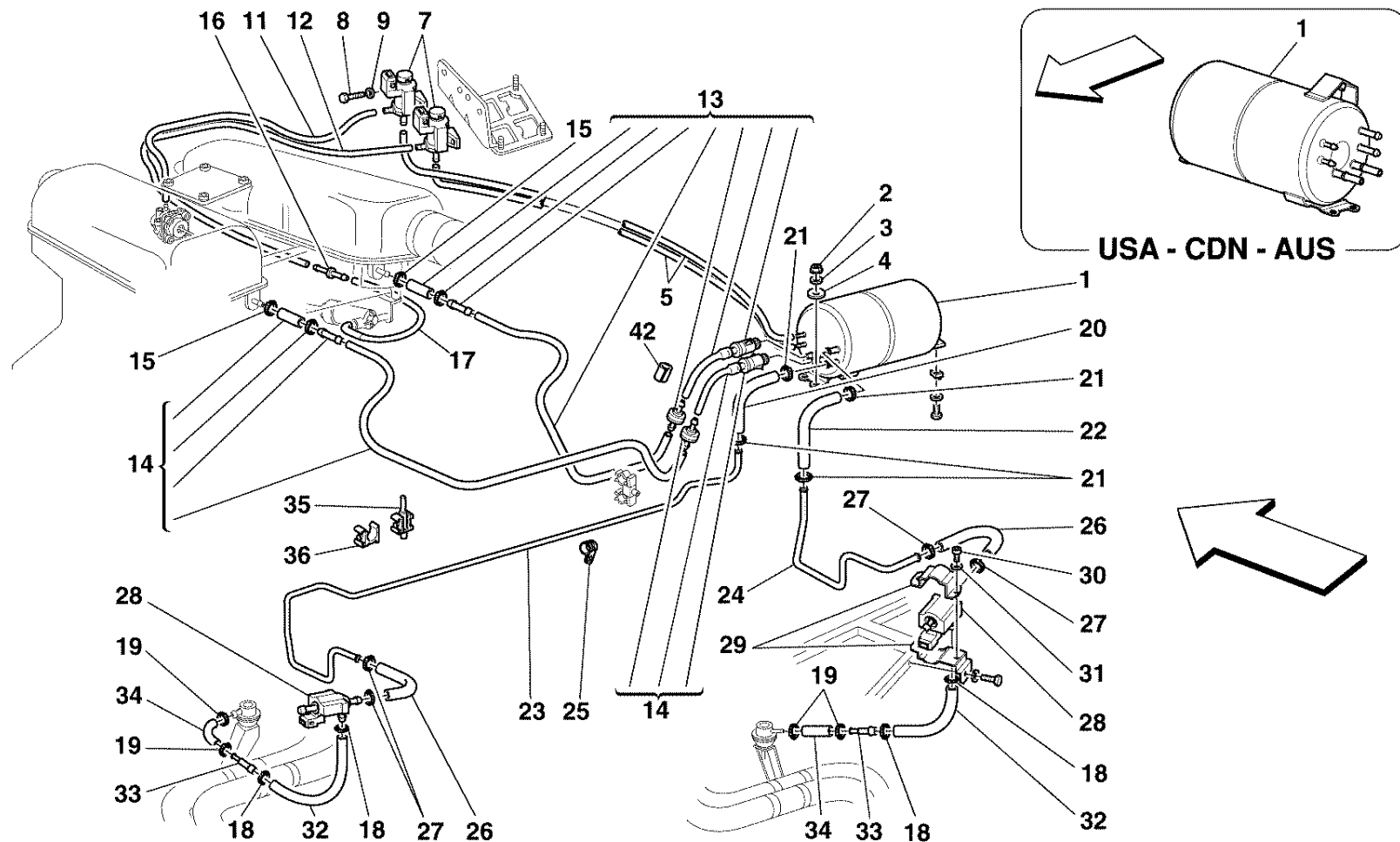
Vale per USA e CDN dall' Ass. Nr. 44739
Valid for USA and CDN from Ass. Nr. 44739



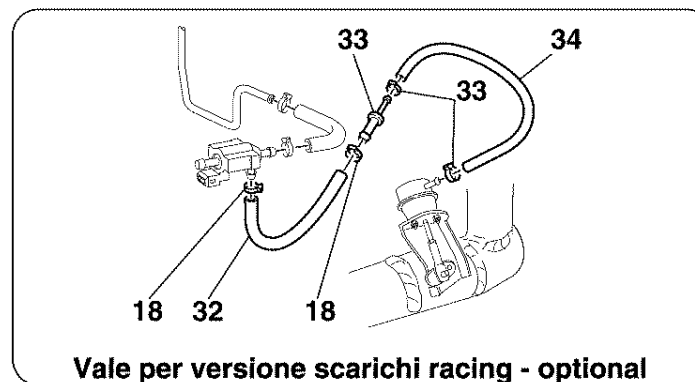
Vale finovedi descrizione
Valid tillsee description



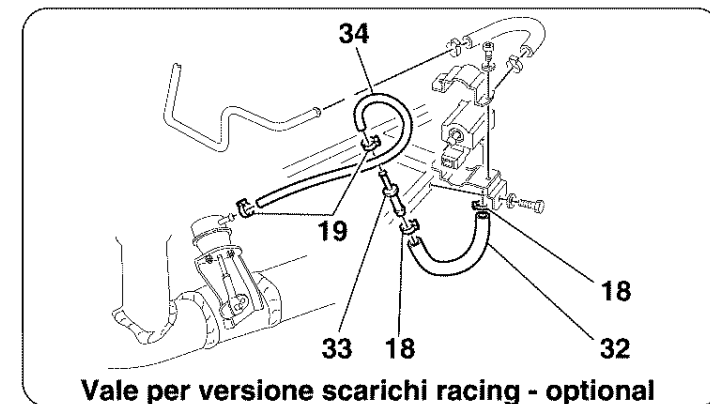
Vale per USA e CDN fino all' Ass. Nr. 44738
Valid for USA and CDN till Ass. Nr. 44738



USA - CDN - AUS



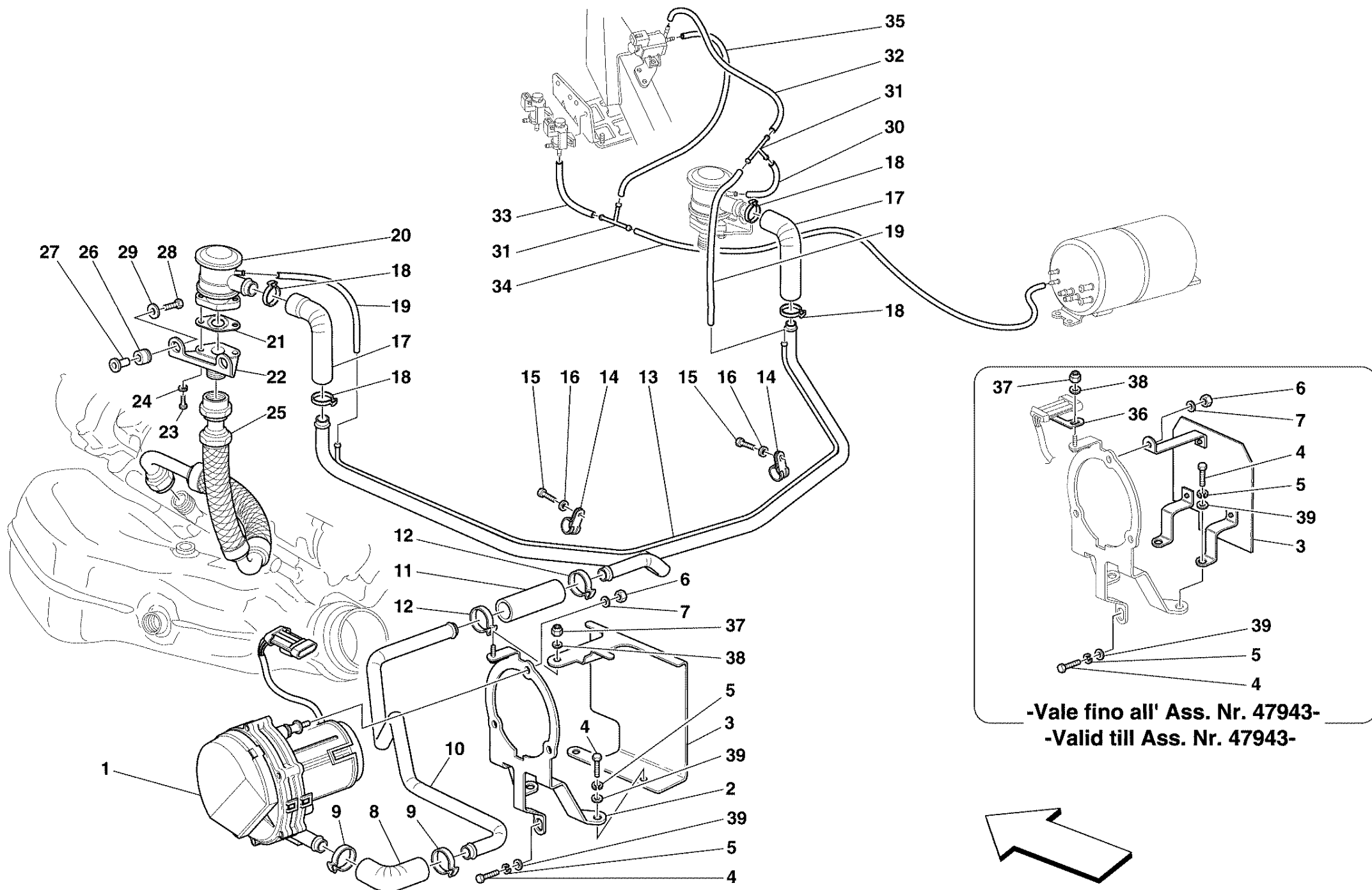
Vale per versione scarichi racing - optional
Valid for racing exhaust version - optional



Vale per versione scarichi racing - optional
Valid for racing exhaust version - optional

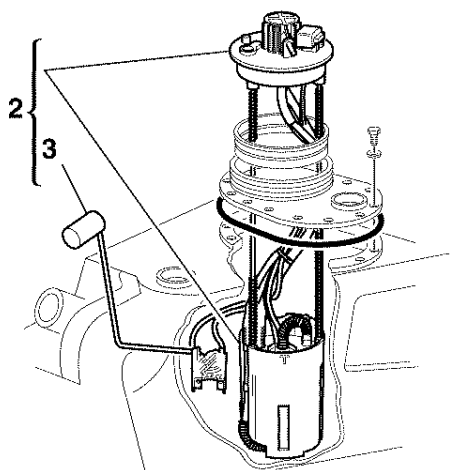
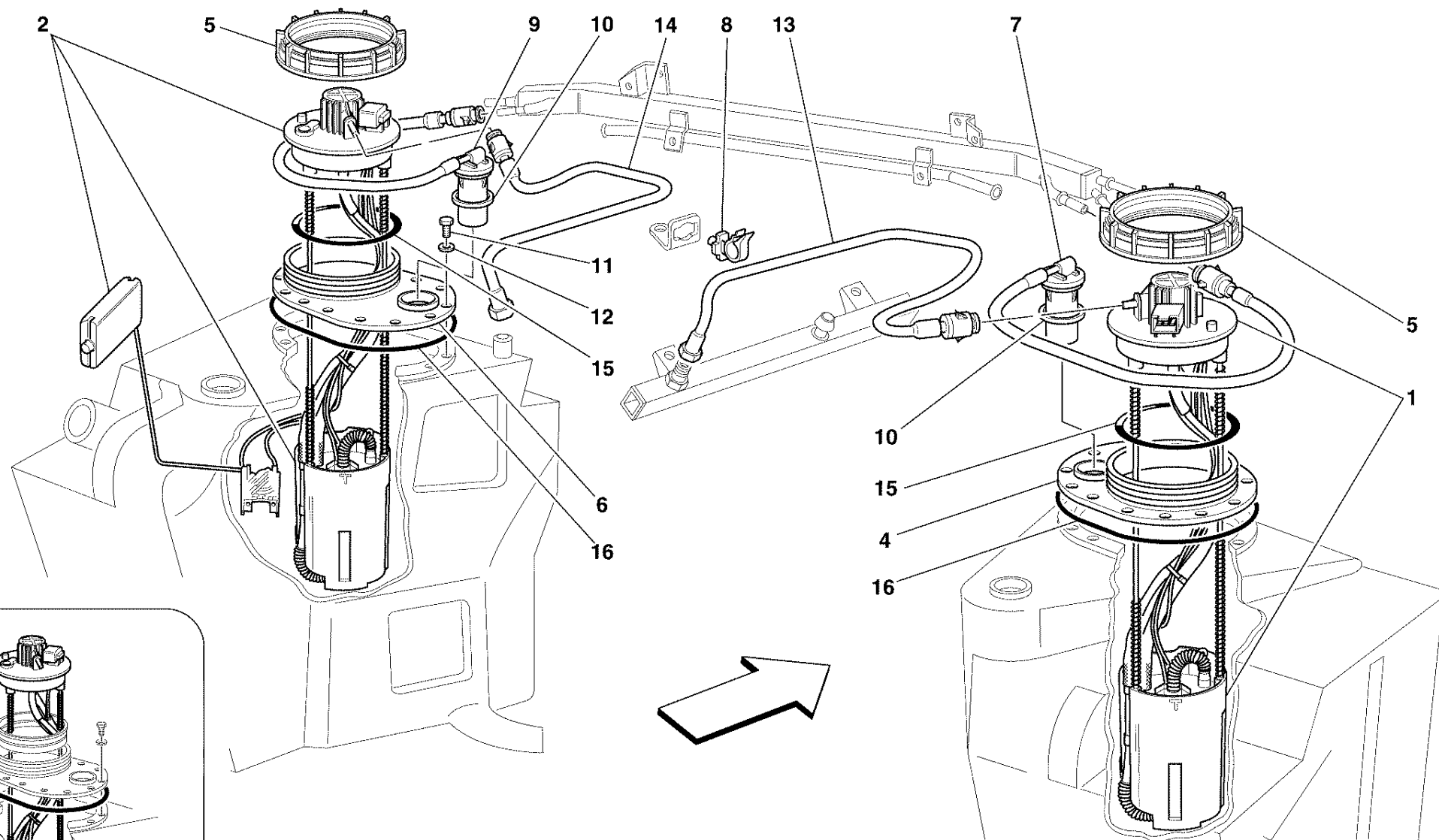
1	1.50.027	1.50.027.0	0,5	Depressure tank - Replace	complete car	all equipments
1	1.50.059	1.50.059.0	0,5	Depressure tank - Replace	complete car	Valid for USA and CDN from M.Y. 1999
2	1.50.056	1.50.027.0	0,5	Depressure tank Nut - Replace	complete car	all equipments
3	1.50.086	1.50.027.0	0,5	Depressure tank Washer - Replace	complete car	all equipments
4	1.50.086	1.50.027.0	0,5	Depressure tank Washer - Replace	complete car	all equipments
5	1.50.018	1.50.018.0	0,4	Pipes from Depressure Tank to Electrovalves - Replace	complete car	all equipments
6	1.50.006	1.50.007.0	0,3	Throttle Compensation Electrovalve Support - Replace	complete car	all equipments
6	1.50.006	1.50.009.0	0,3	Throttle Compensation Electrovalve Support - Replace	complete car	all equipments
6	1.50.006	1.50.077.0	0,3	Throttle Compensation Electrovalve Support - Replace	complete car	Valid for USA and CDN from M.Y. 2000
7	1.50.007	1.50.007.0	0,3	Control electrovalve for compensation throttle - Replace	complete car	all equipments
7	1.50.009	1.50.009.0	0,3	Contr. Electrovalv. for air intake manifold throttles - Replace	complete car	all equipments
7	1.50.077	1.50.077.0	0,3	Secondary air control electro-valve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
8	1.50.026	1.50.007.0	0,3	Electrovalve Screw - Replace	complete car	all equipments
8	1.50.026	1.50.009.0	0,3	Electrovalve Screw - Replace	complete car	all equipments
8	1.50.026	1.50.077.0	0,3	Electrovalve Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
9	1.50.087	1.50.007.0	0,3	Electrovalve Washer - Replace	complete car	all equipments
9	1.50.087	1.50.009.0	0,3	Electrovalve Washer - Replace	complete car	all equipments
9	1.50.087	1.50.077.0	0,3	Electrovalve Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
10	1.50.025	1.50.007.0	0,3	Electrovalve Nut - Replace	complete car	all equipments
10	1.50.025	1.50.009.0	0,3	Electrovalve Nut - Replace	complete car	all equipments
10	1.50.025	1.50.077.0	0,3	Electrovalve Nut - Replace	complete car	Valid for USA and CDN from M.Y. 2000
11	1.50.023	1.50.023.1	0,3	Pipe from Comp.Thrott.Electrov. to Pneum.Capsule - Replace	complete car	all equipments
12	1.50.020	1.50.020.0	0,4	Pipe from Air Int.Man.Thr.Electrov. to Pn.Actuator - Replace	complete car	all equipments
13	1.50.031	1.50.031.1	0,4	Rh. Complete Depressure Pipe - Replace	complete car	all equipments
14	1.50.034	1.50.034.1	0,4	Lh. Complete Depressure Pipe - Replace	complete car	all equipments
15	1.50.126	1.50.031.1	0,4	Complete Depressure Pipe Collar - Replace	complete car	all equipments
15	1.50.126	1.50.034.1	0,4	Complete Depressure Pipe Collar - Replace	complete car	all equipments
16	1.50.088	1.50.089.0	0,3	Pneumatic Actuator Pipe Union - Replace	complete car	all equipments
17	1.50.089	1.50.089.0	0,3	Pipe from Union to Pneumatic Actuator - Replace	complete car	all equipments
18	1.50.024	1.50.043.0	0,1	Collar for By-pass Control Electrovalve Pipe - Replace	complete car	Mechanical Gearbox
18	1.50.024	1.50.043.1	0,2	Collar for By-pass Control Electrovalve Pipe - Replace	complete car	F1 Gearbox
18	1.50.024	1.50.044.0	0,1	Collar for By-pass Control Electrovalve Pipe - Replace	complete car	all equipments
19	1.50.024	1.50.043.0	0,1	Collar for By-pass Control Electrovalve Pipe - Replace	complete car	Mechanical Gearbox
19	1.50.024	1.50.043.1	0,2	Collar for By-pass Control Electrovalve Pipe - Replace	complete car	F1 Gearbox
19	1.50.024	1.50.044.0	0,1	Collar for By-pass Control Electrovalve Pipe - Replace	complete car	all equipments
20	1.50.094	1.50.039.0	0,8	Pipe for Pipe from Tank to Lh. Electrovalve - Replace	complete car	all equipments
21	1.50.095	1.50.038.0	0,1	Pipe Collar for Pipe from Tank to Electrovalve - Replace	complete car	Mechanical Gearbox
21	1.50.095	1.50.038.1	0,2	Pipe Collar for Pipe from Tank to Electrovalve - Replace	complete car	F1 Gearbox
21	1.50.095	1.50.039.0	0,8	Pipe Collar for Pipe from Tank to Electrovalve - Replace	complete car	all equipments
22	1.50.131	1.50.038.0	0,1	Pipe for Pipe from Tank to Rh. Electrovalve - Replace	complete car	Mechanical Gearbox
22	1.50.131	1.50.038.1	0,2	Pipe for Pipe from Tank to Rh. Electrovalve - Replace	complete car	F1 Gearbox
23	1.50.039	1.50.039.0	0,8	Pipe from tank to Lh. electrovalve - R. & R. or Replace	complete car	all equipments
24	1.50.038	1.50.038.0	0,1	Pipe from tank to Rh. electrovalve - R. & R. or Replace	complete car	Mechanical Gearbox
24	1.50.038	1.50.038.1	0,2	Pipe from tank to Rh. electrovalve - R. & R. or Replace	complete car	F1 Gearbox
25	1.50.054	1.50.039.0	0,8	Pipe Small Bracket from Tank to Lh. Electrovalve - Replace	complete car	all equipments
26	1.50.092	1.50.043.0	0,1	By-pass Control Electrovalve Inlet Pipe - Replace	complete car	Mechanical Gearbox
26	1.50.092	1.50.043.1	0,2	By-pass Control Electrovalve Inlet Pipe - Replace	complete car	F1 Gearbox
26	1.50.092	1.50.044.0	0,1	By-pass Control Electrovalve Inlet Pipe - Replace	complete car	all equipments
27	1.50.093	1.50.043.0	0,1	By-pass Control Electrovalve Inlet Pipe Collar - Replace	complete car	Mechanical Gearbox
27	1.50.093	1.50.043.1	0,2	By-pass Control Electrovalve Inlet Pipe Collar - Replace	complete car	F1 Gearbox
27	1.50.093	1.50.044.0	0,1	By-pass Control Electrovalve Inlet Pipe Collar - Replace	complete car	all equipments
28	1.50.043	1.50.043.0	0,1	Rh. by-pass control electrovalve - Replace	complete car	Mechanical Gearbox

28	1.50.043	1.50.043.1	0,2	Rh. by-pass control electrovalve - Replace	complete car	F1 Gearbox
28	1.50.044	1.50.044.0	0,1	Lh. by-pass control electrovalve - Replace	complete car	all equipments
29	1.50.055	1.50.043.0	0,1	By-pass Control Electrovalve Support - Replace	complete car	Mechanical Gearbox
29	1.50.055	1.50.043.1	0,2	By-pass Control Electrovalve Support - Replace	complete car	F1 Gearbox
29	1.50.055	1.50.044.0	0,1	By-pass Control Electrovalve Support - Replace	complete car	all equipments
30	1.50.097	1.50.043.0	0,1	By-pass Control Electrovalve Support Screw - Replace	complete car	Mechanical Gearbox
30	1.50.097	1.50.043.1	0,2	By-pass Control Electrovalve Support Screw - Replace	complete car	F1 Gearbox
30	1.50.097	1.50.044.0	0,1	By-pass Control Electrovalve Support Screw - Replace	complete car	all equipments
31	1.50.098	1.50.043.0	0,1	By-pass Control Electrovalve Support Washer - Replace	complete car	Mechanical Gearbox
31	1.50.098	1.50.043.1	0,2	By-pass Control Electrovalve Support Washer - Replace	complete car	F1 Gearbox
31	1.50.098	1.50.044.0	0,1	By-pass Control Electrovalve Support Washer - Replace	complete car	all equipments
32	1.50.099	1.50.043.0	0,1	By-pass Control Electrovalve Outlet Pipe - Replace	complete car	Mechanical Gearbox
32	1.50.099	1.50.043.1	0,2	By-pass Control Electrovalve Outlet Pipe - Replace	complete car	F1 Gearbox
32	1.50.099	1.50.044.0	0,1	By-pass Control Electrovalve Outlet Pipe - Replace	complete car	all equipments
33	1.50.101	1.50.043.0	0,1	Union for By-pass Control Electrovalve Outlet Pipe - Replace	complete car	Mechanical Gearbox
33	1.50.101	1.50.043.1	0,2	Union for By-pass Control Electrovalve Outlet Pipe - Replace	complete car	F1 Gearbox
33	1.50.101	1.50.044.0	0,1	Union for By-pass Control Electrovalve Outlet Pipe - Replace	complete car	all equipments
34	1.50.099	1.50.043.0	0,1	By-pass Control Electrovalve Outlet Pipe - Replace	complete car	Mechanical Gearbox
34	1.50.099	1.50.043.1	0,2	By-pass Control Electrovalve Outlet Pipe - Replace	complete car	F1 Gearbox
34	1.50.099	1.50.044.0	0,1	By-pass Control Electrovalve Outlet Pipe - Replace	complete car	all equipments
35	1.50.090	1.50.090.0	0,1	Anchorage for Lh. Complete Depressure Pipe Clip - Replace	complete car	all equipments
36	1.50.091	1.50.090.0	0,1	Lh. Complete Depressure Pipe Clip - Replace	complete car	all equipments
37	1.50.096	1.50.077.0	0,3	Secondary Air Control Electro-valve Bracket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
38	1.50.136	1.50.077.0	0,3	Secondary Air Control Electro-valve Small Bracket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
39	1.50.137	1.50.077.0	0,3	Sec. Air Control Electro-valve Small Bracket Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
40	1.50.138	1.50.077.0	0,3	Sec. Air Contr. Electro-valve Small Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
41	1.50.138	1.50.077.0	0,3	Sec. Air Contr. Electro-valve Small Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
42	1.50.143	1.50.018.0	0,4	Pipes Rubber from Depress. Tank to Electrovalves - Replace	complete car	all equipments



1	1.50.069	1.50.069.0	0,7	Secondary air pump - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
2	1.50.074	1.50.074.0	0,4	Secondary air pump Bracket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
3	1.50.075	1.50.075.0	0,2	Secondary air pump Shield - Replace	complete car	Valid for USA and CDN from M.Y. 2000
4	1.50.081	1.50.074.0	0,4	Secondary air pump Bracket Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
5	1.50.082	1.50.074.0	0,4	Secondary air pump Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
6	1.50.083	1.50.075.0	0,2	Secondary air pump Shield Nut - Replace	complete car	Valid for USA and CDN from M.Y. 2000
7	1.50.084	1.50.075.0	0,2	Secondary air pump Shield Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
8	1.50.071	1.50.069.0	0,7	Secondary Air Pump Sleeve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
9	1.50.085	1.50.069.0	0,7	Secondary Air Pump Sleeve Collar - Replace	complete car	Valid for USA and CDN from M.Y. 2000
10	1.50.070	1.50.070.0	0,8	Pump interm. pipe-deliv. pipe to valves - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
11	1.50.072	1.50.070.0	0,8	Pump interm. pipe-deliv. pipe to valves Sleeve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
12	1.50.103	1.50.070.0	0,8	Pump Int. pipe-Deliv. Pipe to Valves Sleeve Clamp - Replace	complete car	Valid for USA and CDN from M.Y. 2000
13	1.50.068	1.50.068.0	1,7	Delivery air pipe to valves - R. & R. or Replace	complete car	Valid USA-CDN Mech. Gearbox from M.Y.
2000						
13	1.50.068	1.50.068.1	1,9	Delivery air pipe to valves - R. & R. or Replace	complete car	Valid USA-CDN F1 Gearbox from M.Y.
2000						
14	1.50.105	1.50.068.0	1,7	Small Bracket Delivery Air Pipe to Valves - Replace	complete car	Valid USA-CDN Mech. Gearbox from M.Y.
2000						
14	1.50.105	1.50.068.1	1,9	Small Bracket Delivery Air Pipe to Valves - Replace	complete car	Valid USA-CDN F1 Gearbox from M.Y.
2000						
15	1.50.106	1.50.068.0	1,7	Small Bracket Screw Delivery Air Pipe to Valves - Replace	complete car	Valid USA-CDN Mech. Gearbox from M.Y.
2000						
15	1.50.106	1.50.068.1	1,9	Small Bracket Screw Delivery Air Pipe to Valves - Replace	complete car	Valid USA-CDN F1 Gearbox from M.Y.
2000						
16	1.50.107	1.50.068.0	1,7	Small Bracket Washer Delivery Air Pipe to Valves - Replace	complete car	Valid USA-CDN Mech. Gearbox from M.Y.
2000						
16	1.50.107	1.50.068.1	1,9	Small Bracket Washer Delivery Air Pipe to Valves - Replace	complete car	Valid USA-CDN F1 Gearbox from M.Y.
2000						
17	1.50.062	1.50.060.0	0,6	Rh. Secondary Air Valve Sleeve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
17	1.50.063	1.50.061.0	0,6	Lh. Secondary Air Valve Sleeve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
18	1.50.108	1.50.060.0	0,6	Secondary Air Valve Sleeve Clamp - Replace	complete car	Valid for USA and CDN from M.Y. 2000
18	1.50.108	1.50.061.0	0,6	Secondary Air Valve Sleeve Clamp - Replace	complete car	Valid for USA and CDN from M.Y. 2000
19	1.50.109	1.50.060.0	0,6	Secondary Air Valve Rubber Pipe - Replace	complete car	Valid for USA and CDN from M.Y. 2000
19	1.50.109	1.50.061.0	0,6	Secondary Air Valve Rubber Pipe - Replace	complete car	Valid for USA and CDN from M.Y. 2000
20	1.50.060	1.50.060.0	0,6	Rh. Secondary air valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
20	1.50.061	1.50.061.0	0,6	Lh. Secondary air valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
21	1.50.110	1.50.060.0	0,6	Secondary Air Valve Gasket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
21	1.50.110	1.50.061.0	0,6	Secondary Air Valve Gasket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
22	1.50.064	1.50.060.0	0,6	Rh. Secondary Air Valve Complete Bracket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
22	1.50.065	1.50.061.0	0,6	Lh. Secondary Air Valve Complete Bracket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
23	1.50.111	1.50.060.0	0,6	Secondary Air Valve Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
23	1.50.111	1.50.061.0	0,6	Secondary Air Valve Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
24	1.50.112	1.50.060.0	0,6	Secondary Air Valve Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
24	1.50.112	1.50.061.0	0,6	Secondary Air Valve Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
25	1.50.066	1.50.066.0	0,7	Valve pipe-Rh. Exhaust manifold - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
25	1.50.067	1.50.067.0	0,6	Valve pipe-Lh. Exhaust manifold - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
26	1.50.113	1.50.066.0	0,7	Secondary Air Valve Complete Bracket Grommet - Replace	complete car	Valid for USA and CDN from M.Y. 2000
26	1.50.113	1.50.067.0	0,6	Secondary Air Valve Complete Bracket Grommet - Replace	complete car	Valid for USA and CDN from M.Y. 2000
27	1.50.114	1.50.066.0	0,7	Secondary Air Valve Complete Bracket Spacer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
27	1.50.114	1.50.067.0	0,6	Secondary Air Valve Complete Bracket Spacer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
28	1.50.115	1.50.066.0	0,7	Secondary Air Valve Complete Bracket Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
28	1.50.115	1.50.067.0	0,6	Secondary Air Valve Complete Bracket Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000

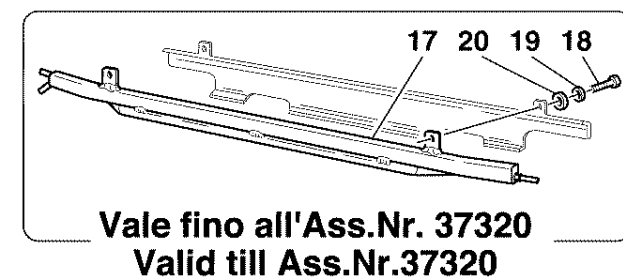
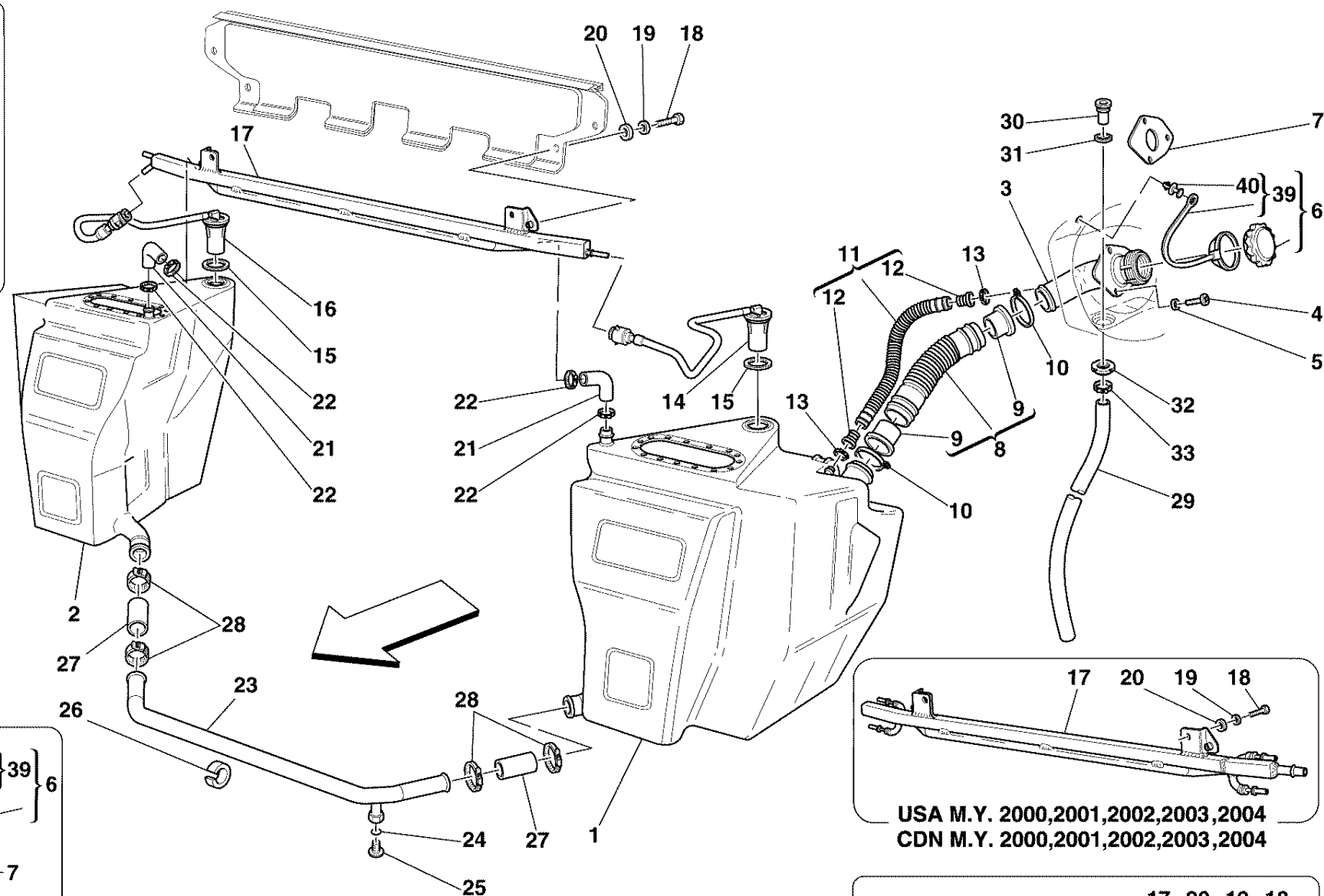
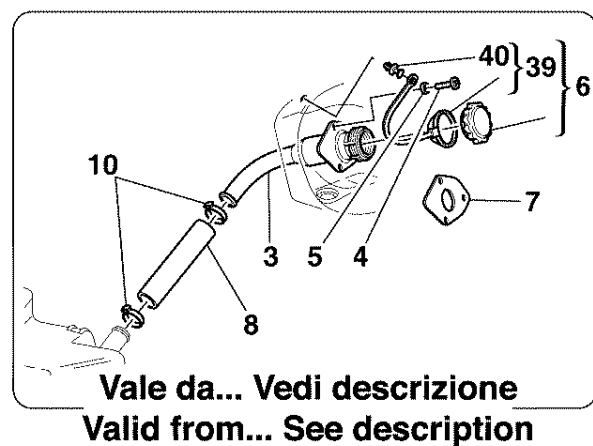
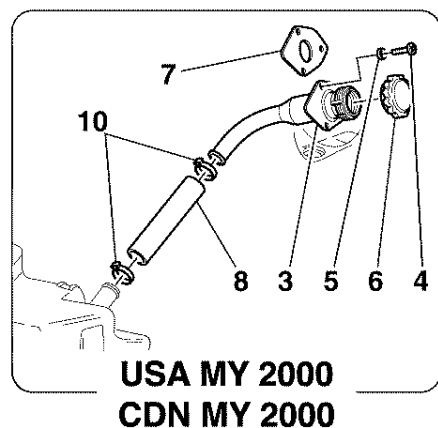
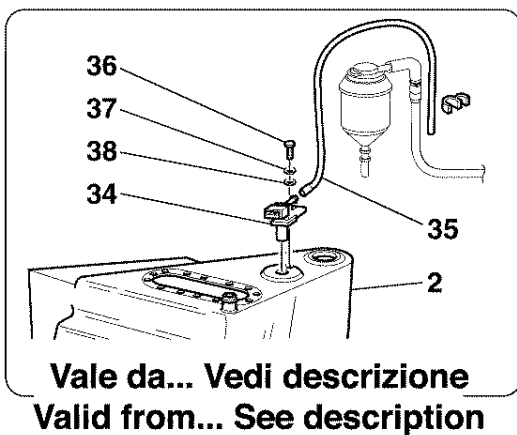
29	1.50.116	1.50.066.0	0,7	Secondary Air Valve Complete Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
29	1.50.116	1.50.067.0	0,6	Secondary Air Valve Complete Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
30	1.50.109	1.50.060.0	0,6	Secondary Air Valve Rubber Pipe - Replace	complete car	Valid for USA and CDN from M.Y. 2000
31	1.50.117	1.50.018.0	0,4	Pipes Three Way from Depr. Tank to Electrovalves - Replace	complete car	all equipments
31	1.50.118	1.50.119.0	0,3	Pipe Three Way from Electrov. to Lh. Sec.Air Valve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
32	1.50.119	1.50.119.0	0,3	Pipe from Electro-valve to Lh. Sec. Air Valve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
33	1.50.018	1.50.018.0	0,4	Pipes from Depressure Tank to Electrovalves - Replace	complete car	all equipments
34	1.50.018	1.50.018.0	0,4	Pipes from Depressure Tank to Electrovalves - Replace	complete car	all equipments
35	1.50.139	1.50.139.0	0,3	Pipe to Sec. Air Control Electro-valve - Replace	complete car	Valid for USA and CDN from M.Y. 2000
36	1.50.122	1.50.069.0	0,7	Secondary Air Pump Connector Clip - Replace	complete car	Valid for USA and CDN from M.Y. 2000
37	1.50.123	1.50.069.0	0,7	Secondary Air Pump Connector Clip Nut - Replace	complete car	Valid for USA and CDN from M.Y. 2000
38	1.50.084	1.50.075.0	0,2	Secondary air pump Shield Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
38	1.50.124	1.50.069.0	0,7	Secondary Air Pump Connector Clip Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
39	1.50.082	1.50.074.0	0,4	Secondary air pump Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000



Galleggiante cilindrico
Cylindrical float

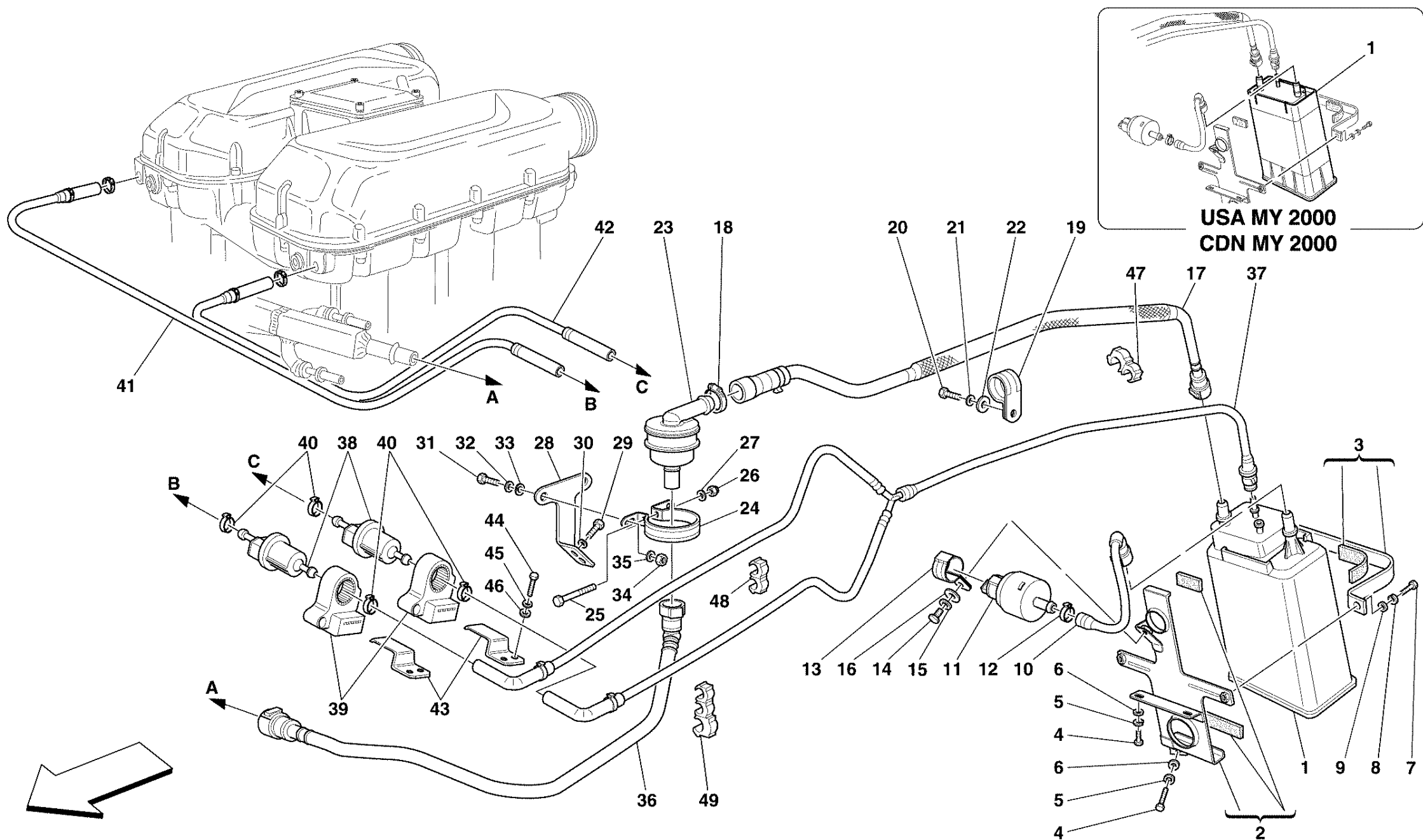
F131_C: 360modena - 10 FUEL PUMPS AND PIPES

1	1.40.101	1.40.101.0	0,9	Rh. Fuel pump - Replace	complete car	all equipments
2	1.40.102	1.40.102.0	0,8	Lh. Fuel pump - Replace	complete car	all equipments
3	1.40.006	1.40.006.0	0,7	Fuel float gauge - Replace (with complete pump group)	complete car	all equipments
4	1.40.107	1.40.101.0	0,9	Rh. Fuel Pump Supporting Cover - Replace	complete car	all equipments
5	1.40.113	1.40.101.0	0,9	Rh. Fuel Pump Ring Nut - Replace	complete car	all equipments
5	1.40.114	1.40.102.0	0,8	Lh. Fuel Pump Ring Nut - Replace	complete car	all equipments
6	1.40.108	1.40.102.0	0,8	Lh. Fuel Pump Supporting Cover - Replace	complete car	all equipments
7	1.40.105	1.40.105.0	0,3	Tank vent pipe with Rh. Floating valve - R & R. or Replace	complete car	all equipments
7	1.40.106	1.40.106.0	0,3	Tank vent pipe with Lh. Floating valve - R & R. or Replace	complete car	all equipments
8	1.40.169	1.40.103.0	0,4	Delivery Pipe to Pipes Clip - Replace	complete car	all equipments
8	1.40.169	1.40.104.0	0,4	Delivery Pipe to Pipes Clip - Replace	complete car	all equipments
9	1.40.106	1.40.106.0	0,3	Tank vent pipe with Lh. Floating valve - R & R. or Replace	complete car	all equipments
10	1.40.112	1.40.105.0	0,3	Cpl. Floating Valve Gasket - Replace	complete car	all equipments
10	1.40.112	1.40.106.0	0,3	Cpl. Floating Valve Gasket - Replace	complete car	all equipments
11	1.40.109	1.40.101.0	0,9	Fuel Pump Supporting Cover Screw - Replace	complete car	all equipments
11	1.40.109	1.40.102.0	0,8	Fuel Pump Supporting Cover Screw - Replace	complete car	all equipments
12	1.40.252	1.40.101.0	0,9	Fuel Pump Supporting Cover Washer - Replace	complete car	all equipments
12	1.40.252	1.40.102.0	0,8	Fuel Pump Supporting Cover Washer - Replace	complete car	all equipments
13	1.40.103	1.40.103.0	0,4	Delivery pipe to Rh. Pipes - R. & R. or Replace	complete car	all equipments
13	1.40.104	1.40.104.0	0,4	Delivery pipe to Lh. Pipes - R. & R. or Replace	complete car	all equipments
14	1.40.103	1.40.103.0	0,4	Delivery pipe to Rh. Pipes - R. & R. or Replace	complete car	all equipments
14	1.40.104	1.40.104.0	0,4	Delivery pipe to Lh. Pipes - R. & R. or Replace	complete car	all equipments
15	1.40.253	1.40.101.0	0,9	Fuel Pump Gasket - Replace	complete car	all equipments
15	1.40.253	1.40.102.0	0,8	Fuel Pump Gasket - Replace	complete car	all equipments
16	1.40.254	1.40.101.0	0,9	Fuel Pump Supporting Cover O.R. Gasket - Replace	complete car	all equipments
16	1.40.254	1.40.102.0	0,8	Fuel Pump Supporting Cover O.R. Gasket - Replace	complete car	all equipments



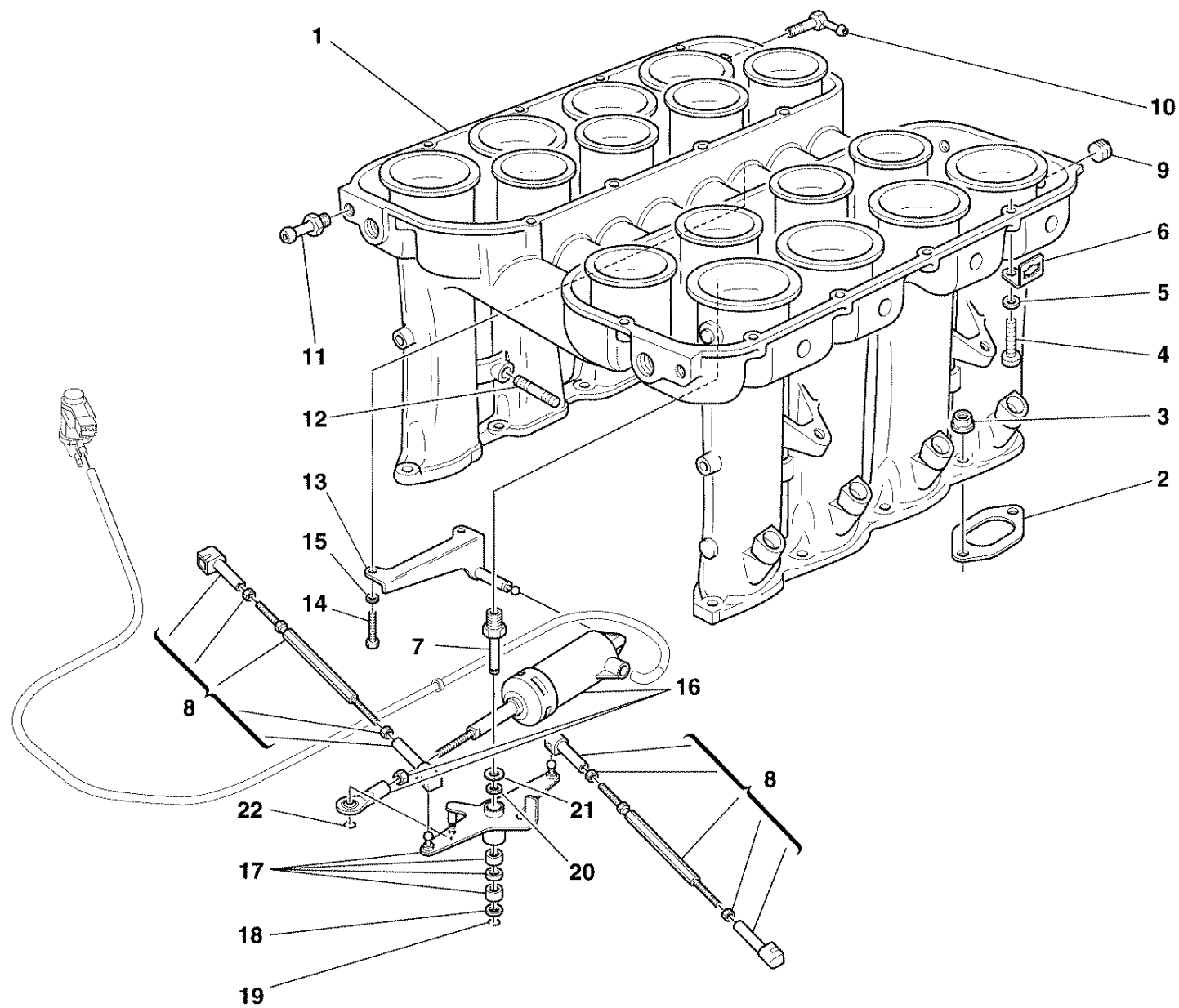
1	1.40.001	1.40.001.0	15,9	Lh. Tank - R. & R. or Replace	complete car	Mechanical Gearbox
1	1.40.001	1.40.001.1	16,5	Lh. Tank - R. & R. or Replace	complete car	F1 Gearbox
2	1.40.002	1.40.002.0	15,8	Rh. Tank - R. & R. or Replace	complete car	Not for USA-CDN Mech. Gearbox
2	1.40.002	1.40.002.1	16,4	Rh. Tank - R. & R. or Replace	complete car	Not for USA-CDN F1 Gearbox
2	1.40.002	1.40.002.2	16,5	Rh. Tank - R. & R. or Replace	complete car	Valid USA-CDN Mech. Gearbox
2	1.40.002	1.40.002.3	17,0	Rh. Tank - R. & R. or Replace	complete car	Valid USA-CDN F1 Gearbox
3	1.40.220	1.40.220.0	0,8	Charging union - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
3	1.40.009	1.40.009.0	0,8	Charging union - Replace	complete car	all equipments
4	1.40.166	1.40.220.0	0,8	Charging Union Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
4	1.40.166	1.40.009.0	0,8	Charging Union Screw - Replace	complete car	all equipments
5	1.40.255	1.40.220.0	0,8	Charging Union Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
5	1.40.255	1.40.009.0	0,8	Charging Union Washer - Replace	complete car	all equipments
6	1.40.012	1.40.220.0	0,8	Charging Union Plug - Replace	complete car	Valid for USA and CDN from M.Y. 2000
6	1.40.012	1.40.009.0	0,8	Charging Union Plug - Replace	complete car	all equipments
7	1.40.167	1.40.220.0	0,8	Charging Union Gasket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
7	1.40.167	1.40.009.0	0,8	Charging Union Gasket - Replace	complete car	all equipments
8	1.40.003	1.40.003.0	0,7	Union sleeve - Replace	complete car	Not for USA and CDN
8	1.40.219	1.40.219.0	0,7	Union sleeve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
9	1.40.256	1.40.003.0	0,7	Union Sleeve Gasket - Replace	complete car	Not for USA and CDN
10	1.40.168	1.40.003.0	0,7	Union Sleeve Collar - Replace	complete car	Not for USA and CDN
11	1.40.026	1.40.026.0	0,8	Vent pipe from tank to union - R. & R. or Replace	complete car	all equipments
12	1.40.257	1.40.026.0	0,8	Vent Pipe from Tank to Union Gasket - Replace	complete car	all equipments
13	1.40.437	1.40.026.0	0,8	Vent Pipe from Tank to Union Collar - Replace	complete car	all equipments
14	1.40.197	1.40.197.0	0,3	Lh. Fuel injection valve - R. & R. or Replace	complete car	all equipments
15	1.40.258	1.40.053.0	0,3	Fuel Injection Valve Gasket - Replace	complete car	all equipments
15	1.40.258	1.40.197.0	0,3	Fuel Injection Valve Gasket - Replace	complete car	all equipments
16	1.40.053	1.40.053.0	0,3	Rh. Fuel injection valve - R. & R. or Replace	complete car	all equipments
17	1.40.018	1.40.018.0	0,5	Disareator - R. & R.	complete car	all equipments
18	1.40.116	1.40.018.0	0,5	Disareator Screw - Replace	complete car	all equipments
19	1.40.259	1.40.018.0	0,5	Disareator Washer - Replace	complete car	all equipments
20	1.40.260	1.40.018.0	0,5	Disareator Washer - Replace	complete car	all equipments
21	1.40.261	1.40.018.0	0,5	Disareator Sleeve - Replace	complete car	all equipments
22	1.40.262	1.40.018.0	0,5	Disareator Sleeve Collar - Replace	complete car	all equipments
23	1.40.004	1.40.004.0	14,9	Tanks connection pipe - Replace	complete car	Mechanical Gearbox
23	1.40.004	1.40.004.1	15,4	Tanks connection pipe - Replace	complete car	F1 Gearbox
24	1.40.263	1.40.004.0	14,9	Tanks Connection Pipe Gasket - Replace	complete car	Mechanical Gearbox
24	1.40.263	1.40.004.1	15,4	Tanks Connection Pipe Gasket - Replace	complete car	F1 Gearbox
25	1.40.132	1.40.004.0	14,9	Tanks Connection Pipe Threaded Plug - Replace	complete car	Mechanical Gearbox
25	1.40.132	1.40.004.1	15,4	Tanks Connection Pipe Threaded Plug - Replace	complete car	F1 Gearbox
26	1.40.264	1.40.004.0	14,9	Tanks Connection Pipe Rubber Thickness - Replace	complete car	Mechanical Gearbox
26	1.40.264	1.40.004.1	15,4	Tanks Connection Pipe Rubber Thickness - Replace	complete car	F1 Gearbox
27	1.40.130	1.40.004.0	14,9	Rh. Tank Sleeve - Replace	complete car	Mechanical Gearbox
27	1.40.130	1.40.004.1	15,4	Rh. Tank Sleeve - Replace	complete car	F1 Gearbox
27	1.40.131	1.40.004.0	14,9	Lh. Tank Sleeve - Replace	complete car	Mechanical Gearbox
27	1.40.131	1.40.004.1	15,4	Lh. Tank Sleeve - Replace	complete car	F1 Gearbox
28	1.40.265	1.40.004.0	14,9	Tank Sleeve Collar - Replace	complete car	Mechanical Gearbox
28	1.40.265	1.40.004.1	15,4	Tank Sleeve Collar - Replace	complete car	F1 Gearbox
29	1.40.266	1.40.266.0	0,8	Charging Union Comp. Exhaust Pipe - R. & R. or Replace	complete car	all equipments
30	1.40.267	1.40.266.0	0,8	Charging Union Comp. Exhaust Pipe Sleeve - Replace	complete car	all equipments
31	1.40.268	1.40.266.0	0,8	Charging Union Comp. Exhaust Pipe Washer - Replace	complete car	all equipments
32	1.40.269	1.40.266.0	0,8	Charging Union Comp. Exhaust Pipe Gland - Replace	complete car	all equipments
33	1.40.270	1.40.266.0	0,8	Charging Union Comp. Exhaust Pipe Collar - Replace	complete car	all equipments

34	1.40.200	1.40.200.0	0,3	Tank pressure sensor - R. & R. or Replace	complete car	Valid for USA and CDN
35	1.40.271	1.40.200.0	0,3	Tank Pressure Sensor Pipe - Replace	complete car	Valid for USA and CDN
36	1.40.272	1.40.200.0	0,3	Tank Pressure Sensor Screw - Replace	complete car	Valid for USA and CDN
37	1.40.273	1.40.200.0	0,3	Tank Pressure Sensor Washer - Replace	complete car	Valid for USA and CDN
38	1.40.274	1.40.200.0	0,3	Tank Pressure Sensor Washer - Replace	complete car	Valid for USA and CDN
39	1.40.248	1.40.220.0	0,8	Charging Union Complete Ring - Replace	complete car	Valid for USA and CDN from M.Y. 2000
39	1.40.248	1.40.009.0	0,8	Charging Union Complete Ring - Replace	complete car	all equipments
40	1.40.275	1.40.220.0	0,8	Retainer for Charging Union String - Replace	complete car	Valid for USA and CDN from M.Y. 2000
40	1.40.275	1.40.009.0	0,8	Retainer for Charging Union String - Replace	complete car	all equipments



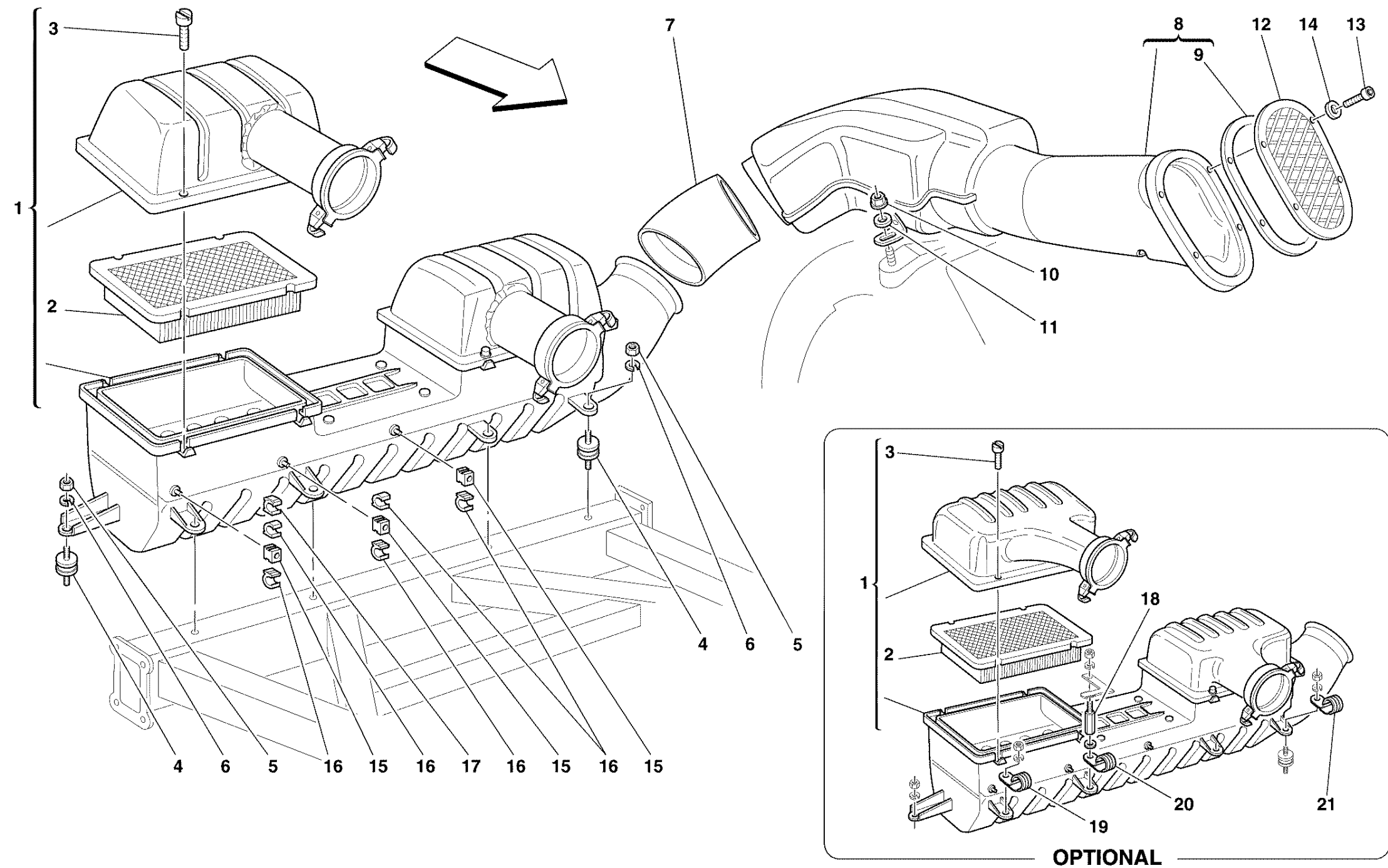
1	1.40.020	1.40.020.1	0,4	Vapor Trap - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 1999
1	1.40.020	1.40.020.3	0,8	Vapor Trap - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
2	1.40.216	1.40.216.0	1,0	Supporting Bracket For Vapor trap - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
3	1.40.355	1.40.355.0	0,5	Fixing Bracket for Vapor trap - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
4	1.40.356	1.40.216.0	1,0	Supporting Bracket For Vapor trap Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
5	1.40.357	1.40.216.0	1,0	Supporting Bracket For Vapor trap Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
6	1.40.357	1.40.216.0	1,0	Supporting Bracket For Vapor trap Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
7	1.40.358	1.40.355.0	0,5	Fixing Bracket For Vapor trap Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
8	1.40.359	1.40.355.0	0,5	Fixing Bracket For Vapor trap Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
9	1.40.359	1.40.355.0	0,5	Fixing Bracket For Vapor trap Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
10	1.40.218	1.40.218.0	0,4	Pipe from Intercep. Valve to Vapor trap - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
11	1.40.215	1.40.215.0	0,5	Interception valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
12	1.40.360	1.40.215.0	0,5	Interception Valve Collar - Replace	complete car	Valid for USA and CDN from M.Y. 2000
13	1.40.361	1.40.215.0	0,5	Interception Valve Bracket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
14	1.40.362	1.40.215.0	0,5	Interception Valve Bracket Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
15	1.40.363	1.40.215.0	0,5	Interception Valve Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
16	1.40.363	1.40.215.0	0,5	Interception Valve Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
17	1.40.214	1.40.214.0	0,4	Pipe from vapor trap to roll-over valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
18	1.40.364	1.40.212.0	0,3	Roll-over Valve Collar - Replace	complete car	Valid for USA and CDN from M.Y. 2000
19	1.40.365	1.40.214.0	0,4	Pipe from Vapor trap to Roll-over Valve Collar - Replace	complete car	Valid for USA and CDN from M.Y. 2000
20	1.40.366	1.40.214.0	0,4	Pipe Collar Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
21	1.40.367	1.40.214.0	0,4	Pipe Collar Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
22	1.40.367	1.40.214.0	0,4	Pipe Collar Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
23	1.40.212	1.40.212.0	0,3	Roll-over valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
24	1.40.211	1.40.212.0	0,3	Roll-over Valve Bracket with Sheath - Replace	complete car	Valid for USA and CDN from M.Y. 2000
25	1.40.368	1.40.212.0	0,3	Roll-over Valve Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
26	1.40.369	1.40.212.0	0,3	Roll-over Valve Nut - Replace	complete car	Valid for USA and CDN from M.Y. 2000
27	1.40.370	1.40.212.0	0,3	Roll-over Valve Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
28	1.40.210	1.40.210.0	0,4	Fixing Bracket Roll-over Valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
29	1.40.371	1.40.210.0	0,4	Fixing Bracket Roll-over Valve Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
30	1.40.372	1.40.210.0	0,4	Fixing Bracket Roll-over Valve Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
31	1.40.373	1.40.212.0	0,3	Roll-over Valve Bracket with Sheath Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
32	1.40.374	1.40.212.0	0,3	Roll-over Valve Bracket with Sheath Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
33	1.40.374	1.40.212.0	0,3	Roll-over Valve Bracket with Sheath Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
34	1.40.375	1.40.212.0	0,3	Roll-over Valve Bracket with Sheath Nut - Replace	complete car	Valid for USA and CDN from M.Y. 2000
35	1.40.374	1.40.212.0	0,3	Roll-over Valve Bracket with Sheath Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
36	1.40.208	1.40.208.0	0,5	Pipe from Antiev. Valve to Manifold - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
37	1.40.213	1.40.213.0	0,4	Pipe from vapor trap to antievap. valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
38	1.40.207	1.40.207.0	0,4	Antievaporation valve - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
38	1.40.207	1.40.207.1	1,0	Antievaporation System Check	complete car	Valid for USA and CDN from M.Y. 2000
39	1.40.376	1.40.207.0	0,4	Antievaporation Valve Buffer for Support - Replace	complete car	Valid for USA and CDN from M.Y. 2000
40	1.40.377	1.40.207.0	0,4	Antievaporation Valve Collar - Replace	complete car	Valid for USA and CDN from M.Y. 2000
41	1.40.378	1.40.378.0	0,5	Pipe from Antiev. Valve to Rh. Manifold - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
42	1.40.379	1.40.379.0	0,4	Pipe from Antiev. Valve to Lh. Manifold - R. & R. or Replace	complete car	Valid for USA and CDN from M.Y. 2000
43	1.40.380	1.40.207.0	0,4	Antievaporation Valve Bracket - Replace	complete car	Valid for USA and CDN from M.Y. 2000
44	1.40.381	1.40.207.0	0,4	Antievaporation Valve Bracket Screw - Replace	complete car	Valid for USA and CDN from M.Y. 2000
45	1.40.382	1.40.207.0	0,4	Antievaporation Valve Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
46	1.40.382	1.40.207.0	0,4	Antievaporation Valve Bracket Washer - Replace	complete car	Valid for USA and CDN from M.Y. 2000
47	1.40.383	1.40.214.0	0,4	Pipes Vapor trap Flexible Clip - Replace	complete car	Valid for USA and CDN from M.Y. 2000
47	1.40.383	1.40.213.0	0,4	Pipes Vapor trap Flexible Clip - Replace	complete car	Valid for USA and CDN from M.Y. 2000
48	1.40.384	1.40.213.0	0,4	Pipe from vapor trap to antievap. Valve Clip - Replace	complete car	Valid for USA and CDN from M.Y. 2000
49	1.40.209	1.40.208.0	0,5	Roll-over Valve Flexible Clip - Replace	complete car	Valid for USA and CDN from M.Y. 2000

49	1.40.209	1.40.213.0	0,4	Roll-over Valve Flexible Clip - Replace	complete car	Valid for USA and CDN from M.Y. 2000
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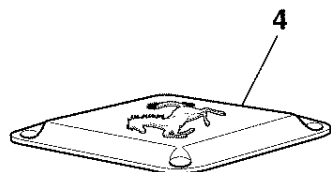


1	1.40.050	1.40.050.0	0,9	Induction manifold - R. & R. of 1 manif. with R. gasket	complete car	all equipments
2	1.40.051	1.40.050.0	0,9	Induction Manifold Gasket - Replace	complete car	all equipments
3	1.40.144	1.40.050.0	0,9	Induction Manifold Nut - Replace	complete car	all equipments
4	1.40.143	1.40.050.0	0,9	Induction Manifold Screw - Replace	complete car	all equipments
5	1.40.385	1.40.050.0	0,9	Induction Manifold Washer - Replace	complete car	all equipments
6	1.40.181	1.40.050.0	0,9	Fixing Bracket For Pipes - Replace	complete car	all equipments
7	1.40.142	1.40.050.0	0,9	Throttle Control Lever Pin - Replace	complete car	all equipments
8	1.40.139	1.40.139.0	2,3	Throttle control tie rods - Replace of two	complete car	all equipments
8	1.40.139	1.40.139.1	2,7	Throttle control tie rods - Replace of ends	complete car	all equipments
9	1.40.386	1.40.050.0	0,9	Induction Manifold Threaded Plug - Replace	complete car	all equipments
10	1.40.180	*		Induction Manifold Rear Union		
11	1.40.179	*		Induction Manifold Front Union		
12	1.40.389	1.40.050.0	0,9	Induction Manifold Stud - Replace	complete car	all equipments
13	1.40.145	1.40.140.0	1,0	Actuator Bracket - Replace	complete car	all equipments
14	1.40.390	1.40.140.0	1,0	Actuator Bracket Screw - Replace	complete car	all equipments
15	1.40.391	1.40.140.0	1,0	Actuator Bracket Washer - Replace	complete car	all equipments
16	1.40.140	1.40.140.0	1,0	Throttle control pneumatic actuator - R. & R. or Replace	complete car	all equipments
17	1.40.141	1.40.141.0	1,2	Throttle control lever - R. & R. or Replace	complete car	all equipments
18	1.40.392	1.40.141.0	1,2	Throttle Control Lever Washer - Replace	complete car	all equipments
19	1.40.393	1.40.141.0	1,2	Throttle Control Lever Seeger Ring - Replace	complete car	all equipments
20	1.40.392	1.40.141.0	1,2	Throttle Control Lever Washer - Replace	complete car	all equipments
21	1.40.392	1.40.141.0	1,2	Throttle Control Lever Washer - Replace	complete car	all equipments

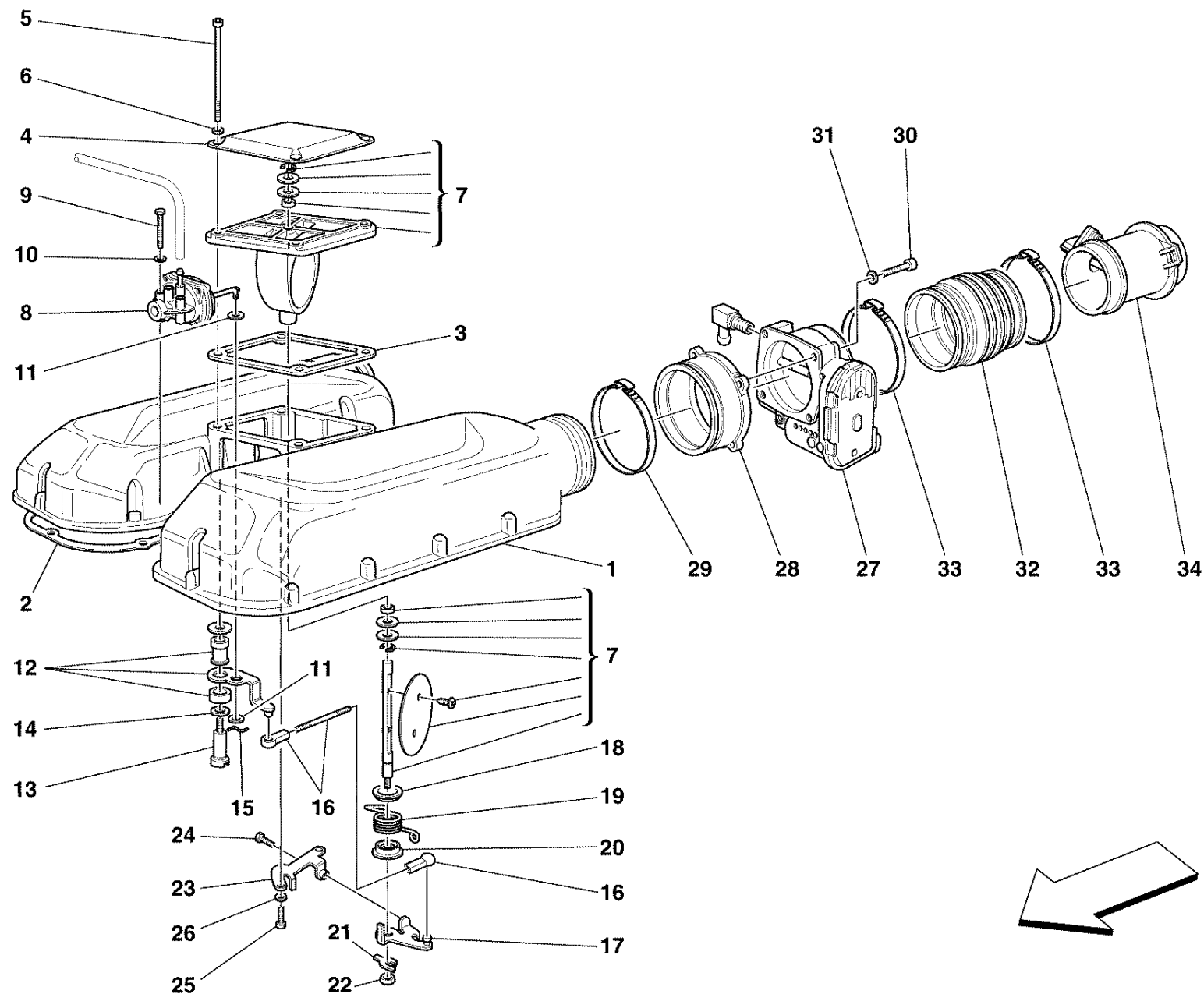
* : The operation for the part is not available.



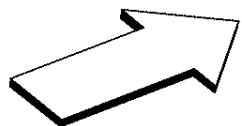
1	1.40.155	1.40.155.0	0,5	Complete filter box - R. & R. or Replace	complete car	all equipments
1	1.40.040	1.40.042.0	0,2	Rh. Air Filter Cover - Replace	complete car	all equipments
1	1.40.394	1.40.196.0	0,2	Lh. Air Filter Cover - Replace	complete car	all equipments
2	1.40.042	1.40.042.0	0,2	Rh. Air Filter - Replace of two	complete car	all equipments
2	1.40.196	1.40.196.0	0,2	Lh. Air Filter - Replace of two	complete car	all equipments
3	1.40.395	1.40.042.0	0,2	Air Filter Cover Screw - Replace	complete car	all equipments
3	1.40.395	1.40.196.0	0,2	Air Filter Cover Screw - Replace	complete car	all equipments
4	1.40.061	1.40.155.0	0,5	Filter Box Pad - Replace	complete car	all equipments
5	1.40.156	1.40.155.0	0,5	Filter Box Nut - Replace	complete car	all equipments
6	1.40.396	1.40.155.0	0,5	Filter Box Washer - Replace	complete car	all equipments
7	1.40.048	1.40.046.0	0,9	Air Conveyor Sleeve - Replace	complete car	all equipments
8	1.40.046	1.40.046.0	0,9	Air conveyor - Replace	complete car	all equipments
9	1.40.397	1.40.046.0	0,9	Air Conveyor Rubber Thickness - Replace	complete car	all equipments
10	1.40.158	1.40.046.0	0,9	Air Conveyor Nut - Replace	complete car	all equipments
11	1.40.398	1.40.046.0	0,9	Air Conveyor Washer - Replace	complete car	all equipments
12	1.40.399	1.40.399.0	0,5	Air Conveyor Grill - Replace	complete car	all equipments
13	1.40.400	1.40.399.0	0,5	Air Conveyor Grill Screw - Replace	complete car	all equipments
14	1.40.401	1.40.399.0	0,5	Air Conveyor Grill Washer - Replace	complete car	all equipments
15	1.40.186	1.40.155.0	0,5	Filter Box Complete Anchorage - Replace	complete car	all equipments
16	1.40.186	1.40.155.0	0,5	Filter Box Complete Anchorage - Replace	complete car	all equipments
17	1.40.186	1.40.155.0	0,5	Filter Box Complete Anchorage - Replace	complete car	all equipments
18	1.40.458	1.40.155.0	0,5	Complete Filter Box Stud - Replace	complete car	all equipments
19	1.40.459	1.40.155.0	0,5	Complete Filter Box Small Bracket - Replace	complete car	all equipments
20	1.40.459	1.40.155.0	0,5	Complete Filter Box Small Bracket - Replace	complete car	all equipments
21	1.40.459	1.40.155.0	0,5	Complete Filter Box Small Bracket - Replace	complete car	all equipments



Vale per versione carbonio - optional
Valid for carbon version - optional



1	1.40.072	1.40.072.0	0,5	Manifolds air body - R. & R. or Replace	complete car	all equipments
2	1.40.052	1.40.072.0	0,5	Induction Manifold Cover Gasket - Replace	complete car	all equipments
3	1.40.149	1.40.072.0	0,5	Compensation Pipeline Gasket - Replace	complete car	all equipments
4	1.40.147	1.40.164.0	0,7	Compensation Pipeline Cover - Replace	complete car	all equipments
5	1.40.148	1.40.164.0	0,7	Compensation Pipeline Screw - Replace	complete car	all equipments
6	1.40.402	1.40.164.0	0,7	Compensation Pipeline Washer - Replace	complete car	all equipments
7	1.40.164	1.40.164.0	0,7	Complete compensation pipeline - R. & R. or Replace	complete car	all equipments
8	1.40.146	1.40.146.0	0,1	Pneumatic cap - R. & R. or Replace	complete car	all equipments
9	1.40.184	1.40.146.0	0,1	Pneumatic Cap Screw - Replace	complete car	all equipments
10	1.40.403	1.40.146.0	0,1	Pneumatic Cap Washer - Replace	complete car	all equipments
11	1.40.404	1.40.146.0	0,1	Pneumatic Cap Washer - Replace	complete car	all equipments
12	1.40.405	1.40.405.0	0,8	Throttle Control Lever - R. & R. or Replace	complete car	all equipments
13	1.40.151	1.40.405.0	0,8	Throttle Control Lever Pin - Replace	complete car	all equipments
14	1.40.406	1.40.405.0	0,8	Throttle Control Lever Washer - Replace	complete car	all equipments
15	1.40.183	1.40.405.0	0,8	Throttle Control Lever Pin - Replace	complete car	all equipments
16	1.40.152	1.40.152.0	0,5	Tie rod for throttle lever - R. & R. or Replace	complete car	all equipments
17	1.40.407	1.40.152.0	0,5	Complete Minimum Lever - Replace	complete car	all equipments
18	1.40.408	1.40.164.0	0,7	Compensation Pipeline Bushing - Replace	complete car	all equipments
19	1.40.153	1.40.164.0	0,7	Compensation Pipeline Spring - Replace	complete car	all equipments
20	1.40.409	1.40.164.0	0,7	Compensation Pipeline Bushing - Replace	complete car	all equipments
21	1.40.410	1.40.164.0	0,7	Compensation Pipeline Safety Plate - Replace	complete car	all equipments
22	1.40.182	1.40.164.0	0,7	Compensation Pipeline Nut - Replace	complete car	all equipments
23	1.40.411	1.40.164.0	0,7	Compensation Pipeline Support - Replace	complete car	all equipments
24	1.40.412	1.40.152.0	0,5	Compensation Pipeline Support Screw - Replace	complete car	all equipments
25	1.40.413	1.40.152.0	0,5	Compensation Pipeline Support Screw - Replace	complete car	all equipments
26	1.40.414	1.40.152.0	0,5	Compensation Pipeline Support Washer - Replace	complete car	all equipments
27	1.40.065	1.40.065.0	0,3	Lh. Motorized throttle body - R. & R. or Replace	complete car	all equipments
27	1.40.190	1.40.190.0	0,3	Rh. Motorized throttle body - R. & R. or Replace	complete car	all equipments
28	1.40.415	1.40.065.0	0,3	Motorized Throttle Body Spacer - Replace	complete car	all equipments
28	1.40.415	1.40.190.0	0,3	Motorized Throttle Body Spacer - Replace	complete car	all equipments
29	1.40.438	1.40.065.0	0,3	Motorized Throttle Body Spacer Collar - Replace	complete car	all equipments
29	1.40.438	1.40.190.0	0,3	Motorized Throttle Body Spacer Collar - Replace	complete car	all equipments
30	1.40.154	1.40.065.0	0,3	Motorized Throttle Body Screw - Replace	complete car	all equipments
30	1.40.154	1.40.190.0	0,3	Motorized Throttle Body Screw - Replace	complete car	all equipments
31	1.40.416	1.40.065.0	0,3	Motorized Throttle Body Washer - Replace	complete car	all equipments
31	1.40.416	1.40.190.0	0,3	Motorized Throttle Body Washer - Replace	complete car	all equipments
32	1.40.079	1.40.065.0	0,3	Motorized Throttle Body Sleeve - Replace	complete car	all equipments
32	1.40.079	1.40.190.0	0,3	Motorized Throttle Body Sleeve - Replace	complete car	all equipments
33	1.40.185	1.40.075.0	0,2	Motorized Throttle Body Sleeve Collar - Replace	complete car	all equipments
33	1.40.185	1.40.195.0	0,2	Motorized Throttle Body Sleeve Collar - Replace	complete car	all equipments
34	1.40.075	1.40.075.0	0,2	Rh. Air meter - R. & R. or Replace	complete car	all equipments
34	1.40.195	1.40.195.0	0,2	Lh. Air meter - R. & R. or Replace	complete car	all equipments



F131_C: 360modena - 18 ELECTRONIC ACCELERATOR PEDAL

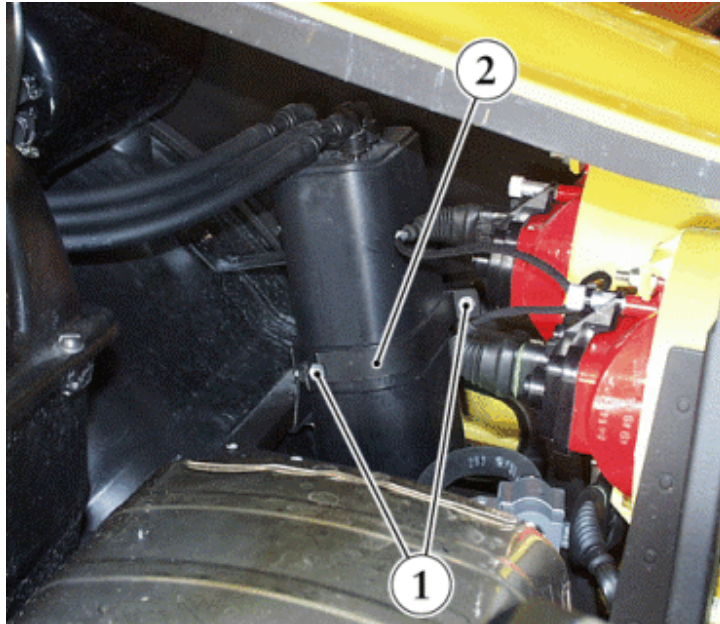
1	1.40.068	1.40.068.0	0,6	Accelerator pedal - Replace	complete car	all equipments
2	1.40.067	1.40.067.0	0,8	Accelerator Pedal Support - R. & R. complete	complete car	all equipments
3	1.40.069	1.40.068.0	0,6	Accelerator Pedal Roller Bearing - Replace	complete car	all equipments
4	1.40.417	1.40.068.0	0,6	Accelerator Pedal Washer - Replace	complete car	all equipments
5	1.40.161	1.40.068.0	0,6	Accelerator Pedal Spring - Replace	complete car	all equipments
6	1.40.162	1.40.162.0	0,5	Pin for accelerator pedal - Replace	complete car	all equipments
7	1.40.418	1.40.067.0	0,8	Accelerator Pedal Support Screw - Replace	complete car	all equipments
8	1.40.419	1.40.067.0	0,8	Accelerator Pedal Support Washer - Replace	complete car	all equipments
9	1.40.160	1.40.160.0	0,5	Cpl. tie rod for acceler. pedal - Replace (with length adj.)	complete car	all equipments
10	1.40.420	1.40.160.0	0,5	Accelerator Pedal Ball Joint Head - Replace	complete car	all equipments
11	1.40.421	1.40.160.0	0,5	Tie Rod for Accelerator Pedal Clip - Replace	complete car	all equipments
12	1.40.422	1.40.160.0	0,5	Tie Rod for Accelerator Pedal Nut - Replace	complete car	all equipments
13	1.40.422	1.40.160.0	0,5	Tie Rod for Accelerator Pedal Nut - Replace	complete car	all equipments
14	1.40.423	1.40.160.0	0,5	Accelerator Potenziometer Ball Joint Head - Replace	complete car	all equipments
15	1.40.159	1.40.159.0	0,6	Accelerator pedal potenziometer - Replace	complete car	all equipments
16	1.40.187	1.40.159.0	0,6	Accelerator Pedal Potenziometer Nut - Replace	complete car	all equipments
17	1.40.424	1.40.159.0	0,6	Accelerator Pedal Potenziometer Washer - Replace	complete car	all equipments
18	1.40.425	1.40.068.0	0,6	Accelerator Pedal Potenziometer Connector Bracket - Replace	complete car	all equipments
19	1.40.426	1.40.068.0	0,6	Accelerator Potenziometer Connector Bracket Screw - Replace	complete car	all equipments
20	1.40.427	1.40.068.0	0,6	Accelerator Potenziometer Connector Bracket - Replace	complete car	all equipments
21	1.40.428	1.40.159.0	0,6	Accelerator Pedal Potenziometer Stud - Replace	complete car	all equipments
22	1.40.163	1.40.163.0	0,6	Adjustment pin for accelerator pedal - Replace	complete car	all equipments
23	1.40.163	1.40.163.0	0,6	Adjustment pin for accelerator pedal - Replace	complete car	all equipments
24	1.40.429	1.40.067.0	0,8	Accelerator Pedal Support Screw - Replace	complete car	all equipments
25	1.40.430	1.40.067.0	0,8	Accelerator Pedal Support Washer - Replace	complete car	all equipments
26	1.40.430	1.40.067.0	0,8	Accelerator Pedal Support Washer - Replace	complete car	all equipments
27	1.40.431	1.40.067.0	0,8	Accelerator Pedal Cover - Replace	complete car	all equipments
28	1.40.432	1.40.067.0	0,8	Accelerator Pedal Cover Screw - Replace	complete car	all equipments

A3.10 REPLACING THE ACTIVATED CARBON FILTER



The activated carbon filter must be replaced at regular intervals, as prescribed in the "PROGRAMMED MAINTENANCE PLAN". The filter is found under the right-hand rear fender.

- Unscrew the support bracket (2) fastening screws (1).

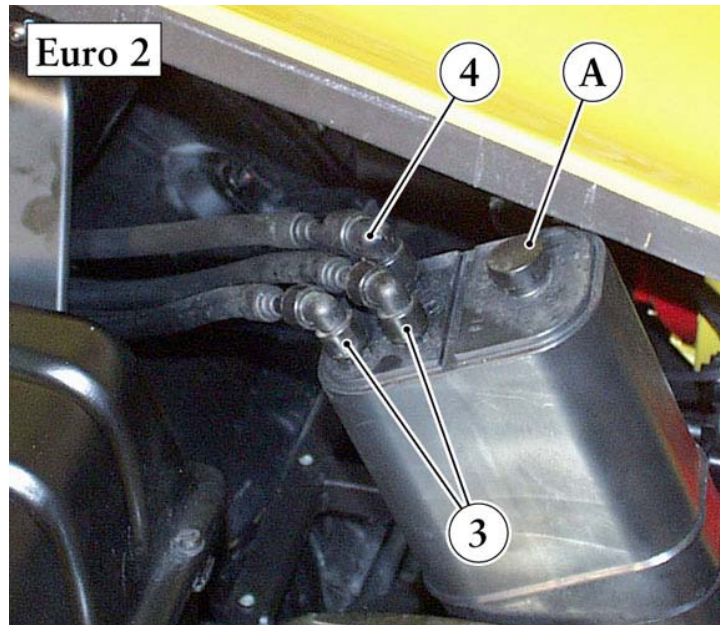


- Shift the filter inward and proceed by detaching the connecting pipe, using a small screwdriver as a lever under the unions.

Notes for the Euro 2 version

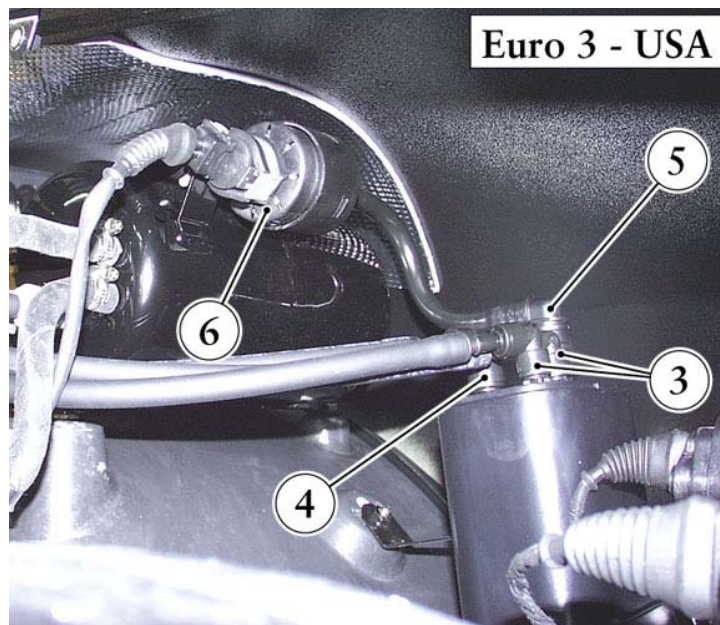
These cars have an active charcoal filter with a vent (**A**) instead of an output union for the interception valve.

- Detach the two unions (**3**, smaller diameter) on the connecting pipes to the anti-evaporative emission valves and the union (**4**, larger diameter) on the connecting pipe to the multifunction valve.



Note for the Euro 3 - US M.Y. 1999 version

Besides the above mentioned pipes, it is also necessary to remove the piping (**5**) which connects the carbon filter's vent stack to the interception valve (**6**).

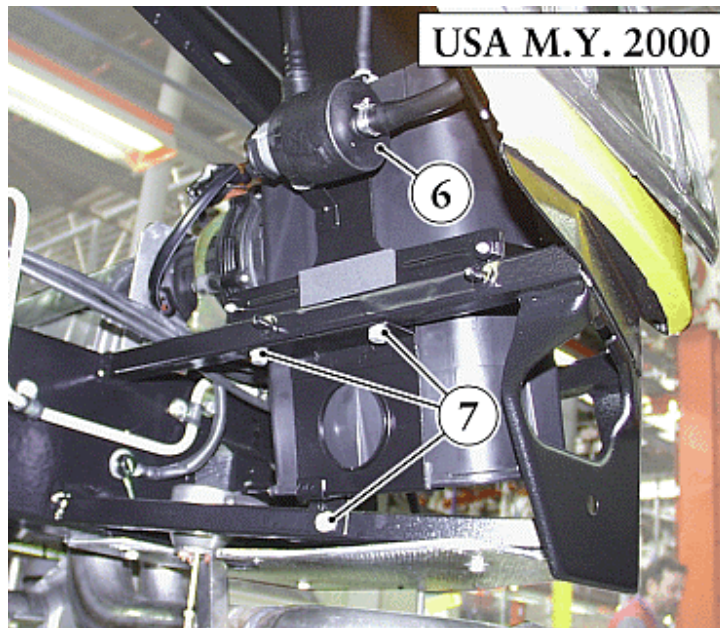


- Replace the activated carbon filter.
- Connect the unions (**3**) and (**4**) for the connecting pipes to the filter.
- Re-install the filter on the support and anchor it with the bracket (**2**).
- Lock the bracket with the screws (**1**).

US M.Y. 2000 version

In this version, the active carbon filter is positioned on the left-hand side, under the rear bumper.

- It is necessary to remove the lower edge of the rear left-hand side wheelhouse in order to access the screws fastening the carbon filter support (👉 [M 2.05](#)).
- Unscrew the three screws (7) fastening the carbon filter support bracket and the interception valve (6).



- Remove the piping which connects the carbon filter.
- Remove the interception valve from the electric system.
- Remove the carbon filter together with the bracket and interception valve from under the mudguard.
- Separate the filter from the support bracket (8) and the interception valve connection, then replace it.



A3.13 REPLACING THE AIR FILTERS

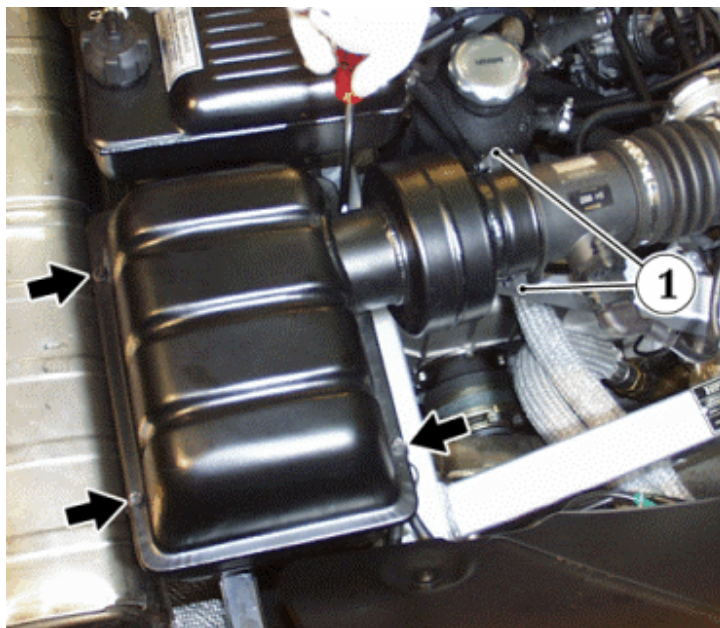


The air filter cartridges must be replaced at regular intervals, as prescribed in the "PROGRAMMED MAINTENANCE PLAN".

IMPORTANT

It is essential that the air filters be in good condition to obtain maximum performance from the engine.

- Unscrew the fastening screws on each cover.
- Release the locks (1) in the air flow meter-cover connection.



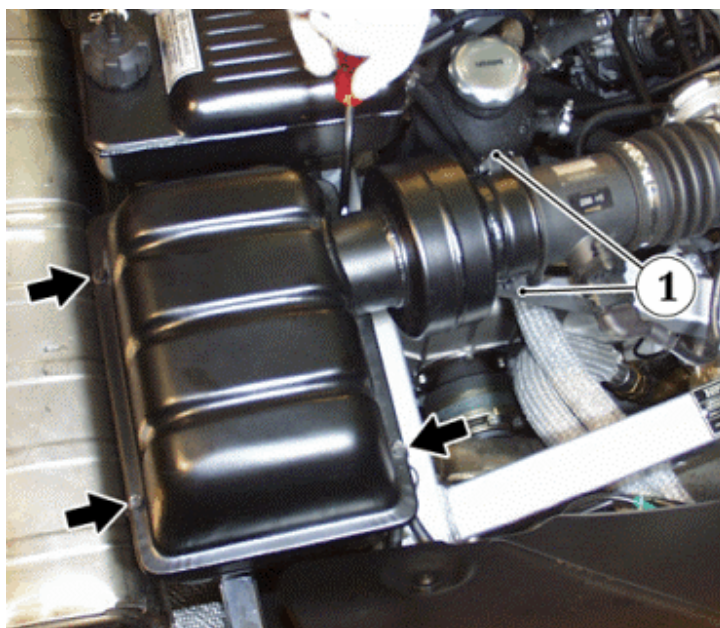
- Remove the covers.
- Slide the air filter cartridges out and replace them.



IMPORTANT

Do not clean or wash the air filter cartridges that have been removed. Always replace them.

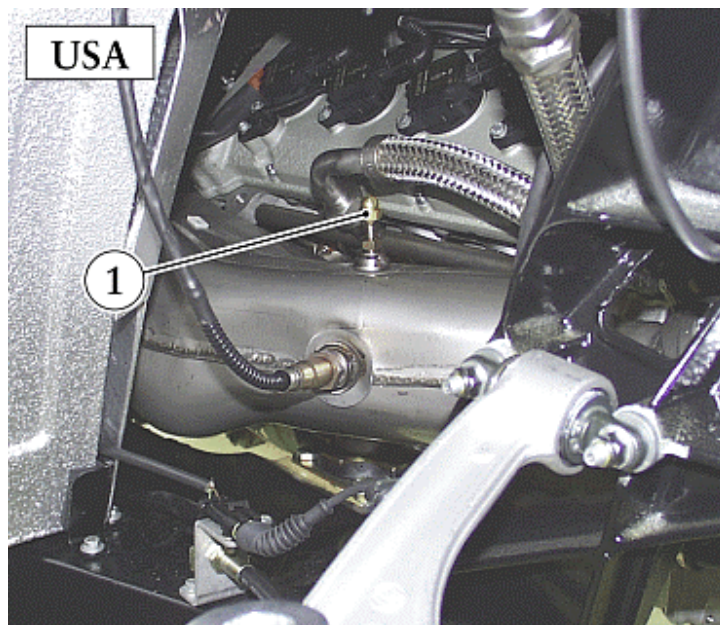
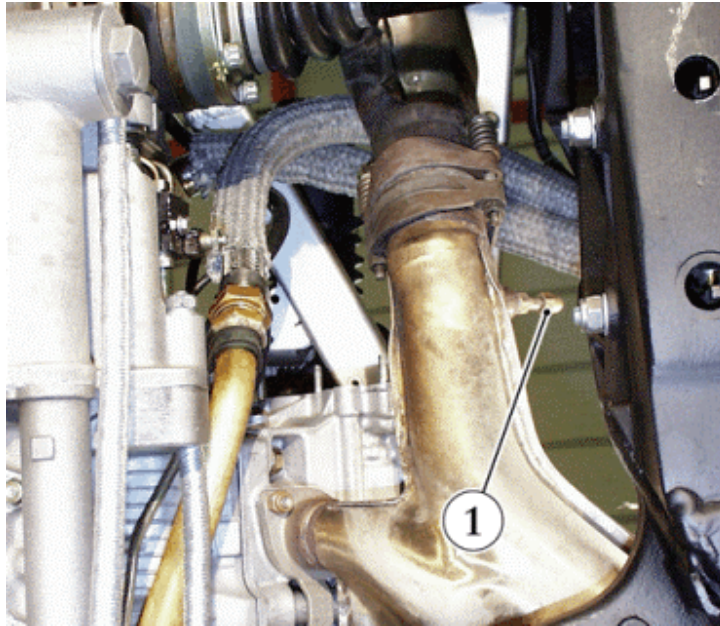
- Slightly lubricate the supporting surface for the filter cartridge on the air intake.
- Position the filter cartridges on the air intake.
- Install the covers and lock them onto the air intake using the fastening screws, and onto the air flow meters with the locks (1).



A3.16 CHECKING EMISSION LEVELS



- Check the CO, HC and NOx levels by connecting the instrument to the exhaust manifold unions, after having removed the nuts (1).



- Once the procedure has been completed, lock the nuts (1) to the **12 Nm** torque.

B6.01 FUEL SUPPLY SYSTEM OUTLINE



Each engine bank is supplied by its own system and each system is independent.

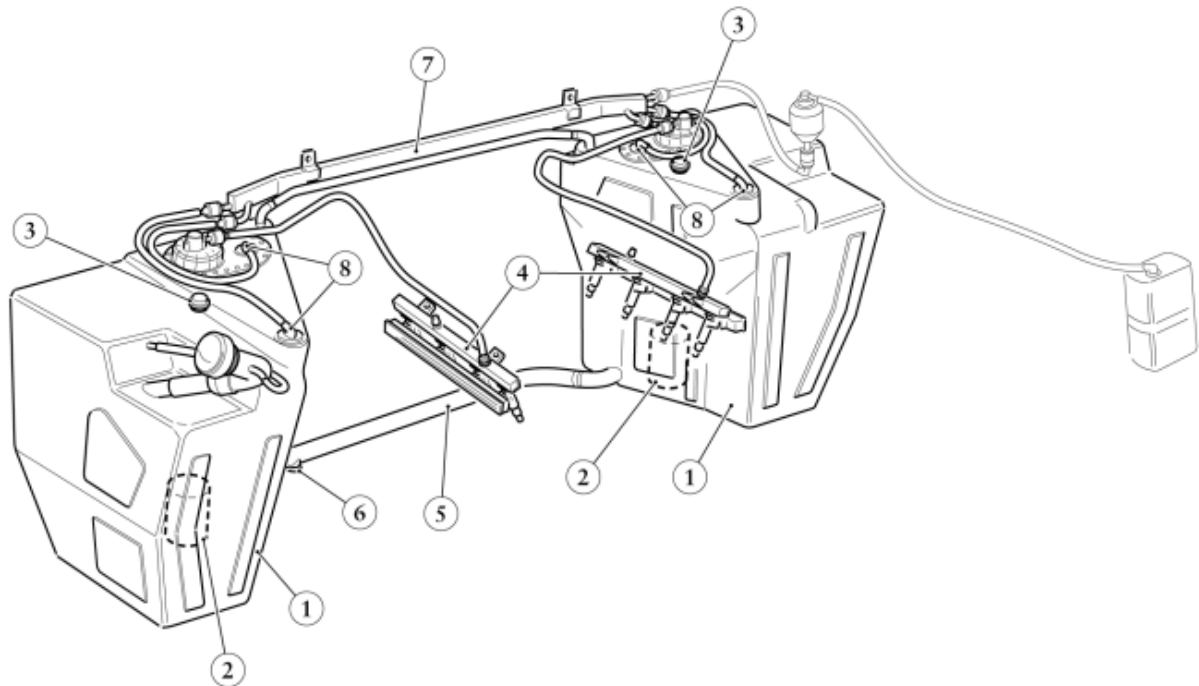
Each system is made up of a fuel tank (1) with an immersed electric pump (2) and a pressure regulator (3) set at **3,6 bar**.

The fuel coming from the pump reaches the flow or injector rail pipe (4) which distributes the fuel to the injectors of each bank.

The system is a "returnless" type, that is without the return of fuel to the tank.

The tanks are connected to each other, in the lower section by a line (5) equipped with a plug (6) used to drain the system and in the upper section by a separator (7) which collects and condenses the fuel vapours (👉 B 6.02).

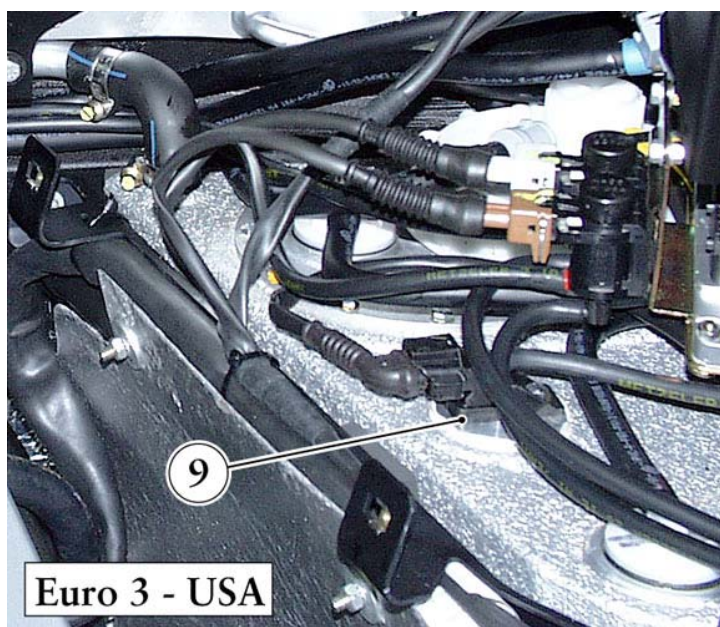
Two roll-over shut-off valves (8) are fitted on the top of each tank. They serve to prevent fuel leakage should the car roll over.



Besides these valves, the system also contains an inertia switch (👉 H 3.04) whose purpose is to cut out the electrical supply for the fuel pumps, in the event that the car undergoes sudden deceleration (collision). The left-hand tank has a control that transmits the signal to the level indicator on the instrument panel.

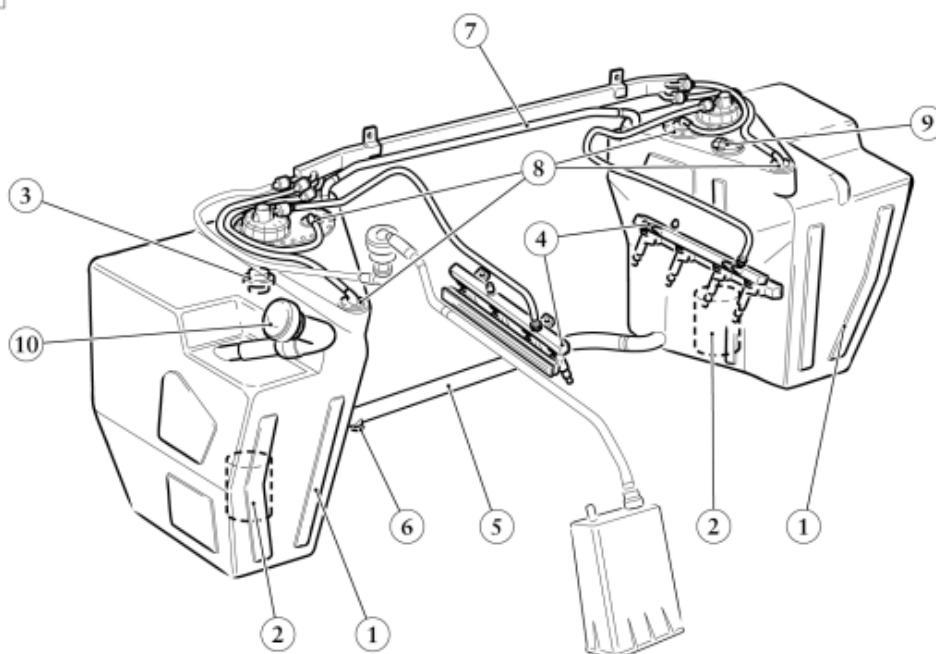
Note for the Euro 3 - US version

There is a pressure sensor on the right-hand reservoir (9) which is able to detect any eventual leakage from the system (👉 C 2.09).



On **USA** version cars, from **M.Y.2000**, the filler neck (10) is equipped with a sealed plug, which is earthed to prevent sparks that may be ignited during re-filling.

USA M.Y. 2000



B6.02 FUEL VAPOUR EMISSION OUTLINE



The evaporation control system is designed to prevent gas vapour leaking into the environment from the fuel circuit.

Vapours coming from the tanks are directed to a separator **(1)** where part of it condenses and is deposited in the tanks and another part reaches the multifunction valve **(2)** which unites the bleeder and roll-over shut-off devices to prevent fuel leakage in the event that the car overturns.

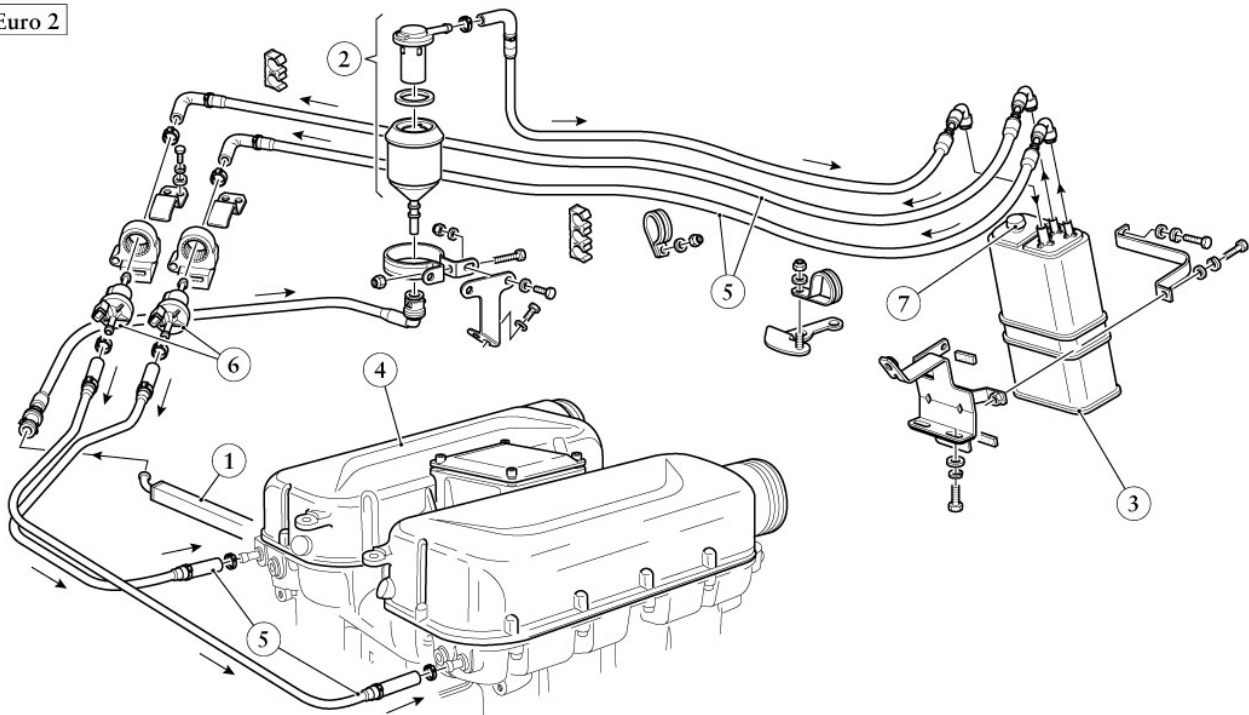
The vapour from the multifunction valve enters the activated charcoal filter **(3)** where it is absorbed and retained when the engine is stopped.

The activated charcoal filter outlet unions are connected to the plenum chamber **(4)** through two pipes **(5)**, with each one being controlled by a solenoid valve **(6)** (C3.10).

The Motronic ECU controls the purge solenoid valves when the engine is started and according to the use conditions.

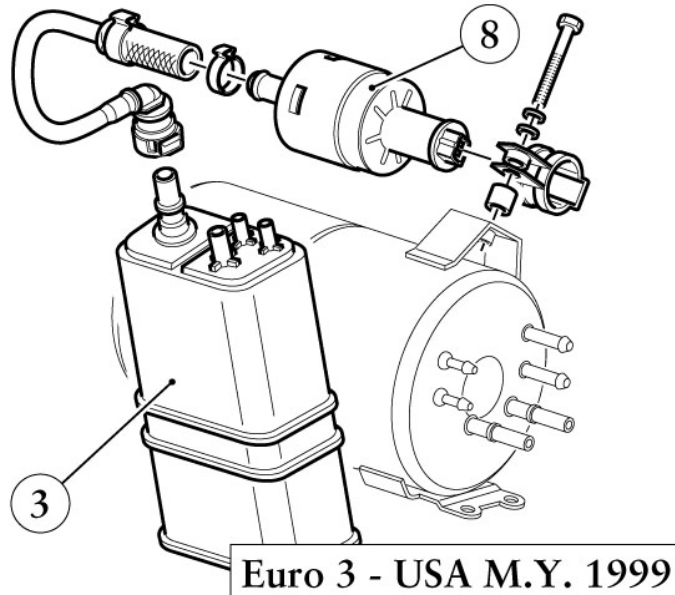
When the solenoid valve is open (energised), the activated charcoal filter filters outside air that enters from the stack **(7)** the intake of which is made possible by the vacuum created by the engine. The fuel vapour is suctioned in together with the air and then reaches the plenum chamber.

Euro 2

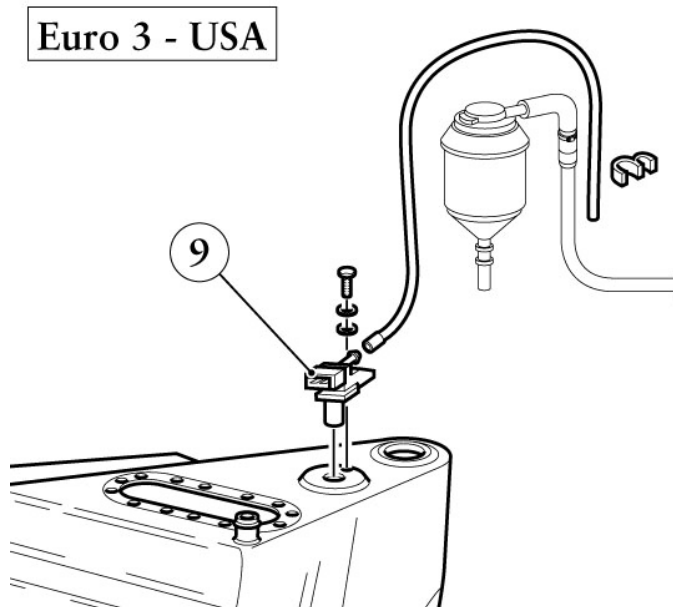


Euro 3 - US M.Y. 1999 version

The intake of external air into the active charcoal filter (3) takes place through an interception valve (8) which is usually open.



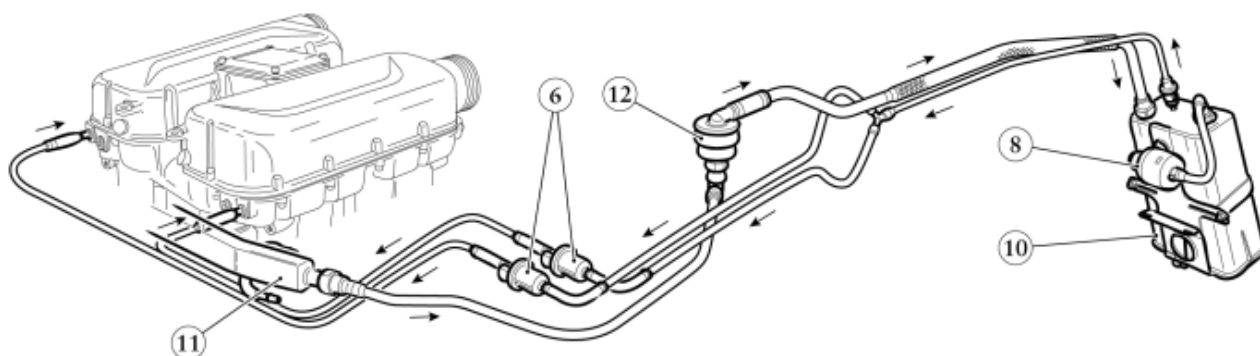
ECU closes the valve at regular intervals and, by detecting the vacuum which is made in the system, it is able to signal any eventual blow-bys. The system's control system for tightness of the system uses, besides the above mentioned valve, also a pressure sensor (9), fastened on the top of the right-hand fuel tank (👉 C 2.09).



US M.Y. 2000 version

In this version, the components are positioned on the left-hand side of the engine compartment. It has a specific active charcoal filter **(10)** and a single output union. Besides this, a specific anti-downflow valve **(12)** is fitted on the piping which connects the separator **(11)** to the charcoal filter. Unlike the valves on the other versions, this is not detachable.

USA M.Y. 2000



Replacing the fuel vapour separator

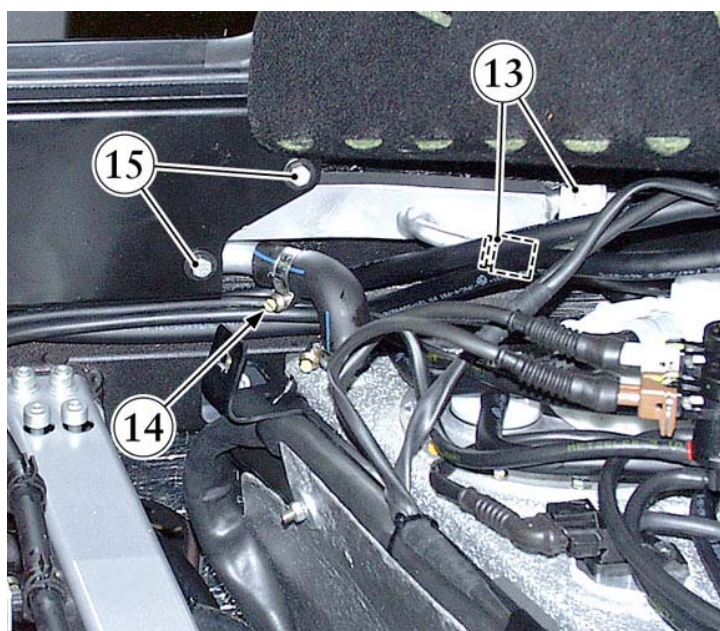
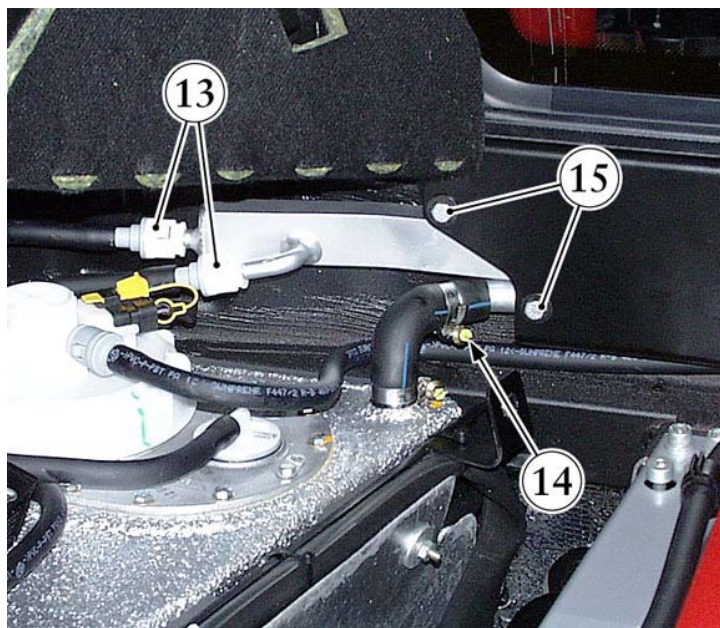
- Remove the engine compartment side guards ( M2.13).



CAUTION

The fuel contained in the tanks and in the fuel system is a highly inflammable product. Carry out the operation when the engine is cool and the tanks are empty, or with little fuel, to avoid fire risks.

- Detach the unions (13) on the pipes connecting the tank's roll-over shut-off valves, as well as the union on the pipe for the multifunction or non-return valve, in the **USA M.Y. 2000** version.
- Loosen the clamp (14) and detach the tanks' upper connecting pipe couplings from the separator.
- Undo the fastening screws (15) and remove the separator's heat-resistant shield.
- Undo the two fastening screws and remove the entire separator from the car body.



B6.03 FUEL PUMP UNIT

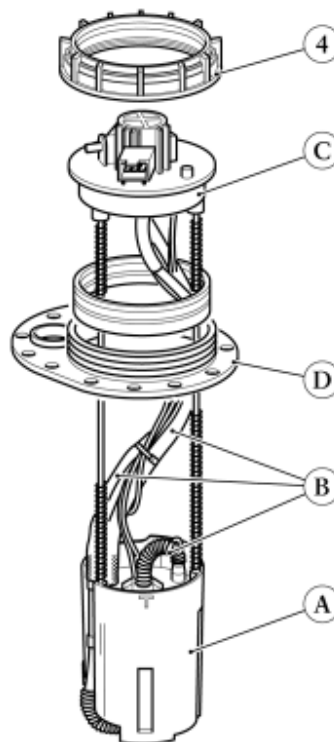


The pumps supplying each engine bank are fitted inside a collecting pan, mounted on the fuel tank bottom.

NOTES

For information on the pump functioning and features ( [C 3.01](#)).

The pump is supplied as a spare part together with the collecting pan (A), pipes (B), upper cap (C) and flange (D). The pipes are hot-welded on the pump, cap and pan unions and they must not be separated.



Disassembly

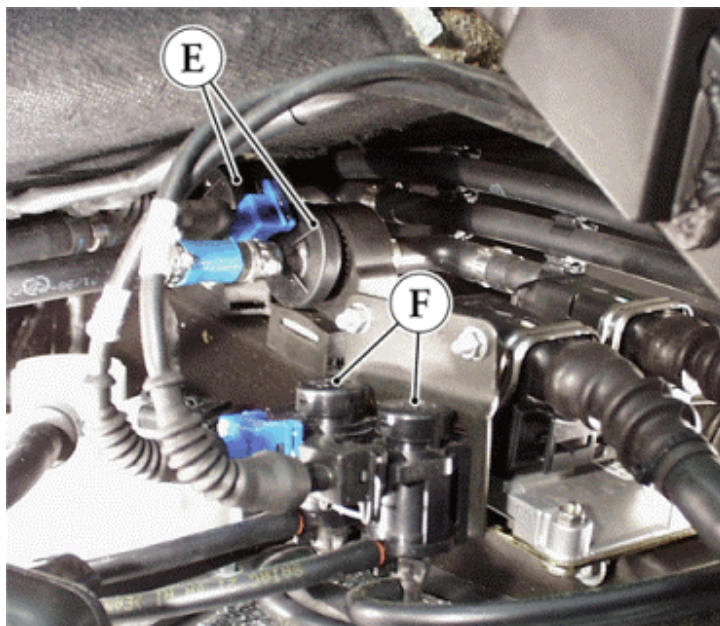
To work on the pump, the upper flange (D) must be removed from the tank, following the procedure described.



CAUTION

The fuel contained in the tanks and in the fuel supply system is a highly flammable product. To avoid the risk of fires, any maintenance shall be carried out when the engine is cool and with the tanks empty or containing very little fuel.

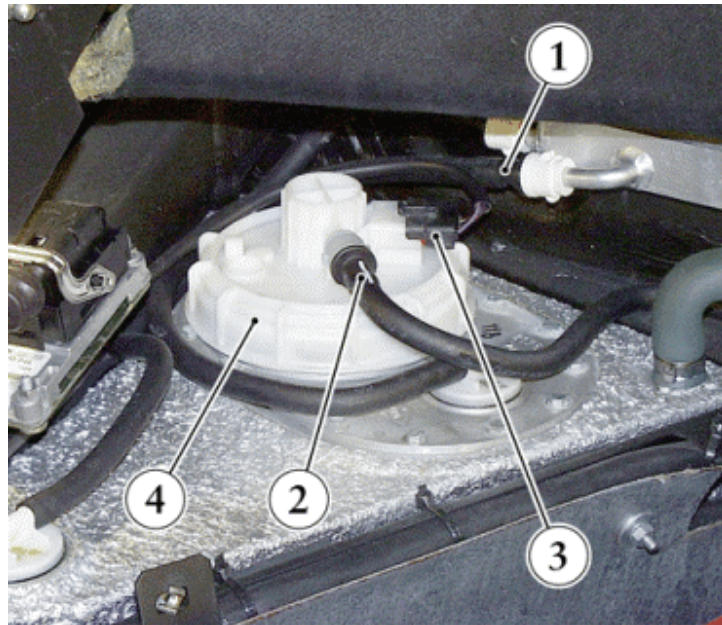
- Remove the side shields from the engine compartment (👉 M 2.13).
- To work on the right-hand tank flange, first detach the elastic bases of the solenoid valves (E) from the support brackets and then remove the solenoid valve support (F) of the anti-evaporative emission system from the MOTRONIC control unit bracket.



NOTES

The figures refer to the removal of the left-hand tank's pump. The procedure for removing the right-hand tank's pump is identical. The right-hand tank differs in that it does not have a fuel level indicator.

- Detach the roll-over shut-off valve pipe **(1)** from the fuel vapour separator.
- Detach the union **(2)** for the pipe delivering fuel to the injector rail and the connector **(3)** from the cover.
- Using the Part No. **95971854** wrench, unscrew and remove the ring nut **(4)** so as to have access to the flange screws.



- Remove the screws fastening the flange **(D)** to the tank.
- Remove the entire pump unit from the tank, taking extreme care not to damage the level indicator float arm.

IMPORTANT

Protect the tank opening suitably to prevent the entrance of foreign matter.

The pressure regulator is installed within the upper cap ( [B 6.05](#)) while the level indicator is mounted on the edge of left-hand pump collecting pan ( [B 6.04](#)).

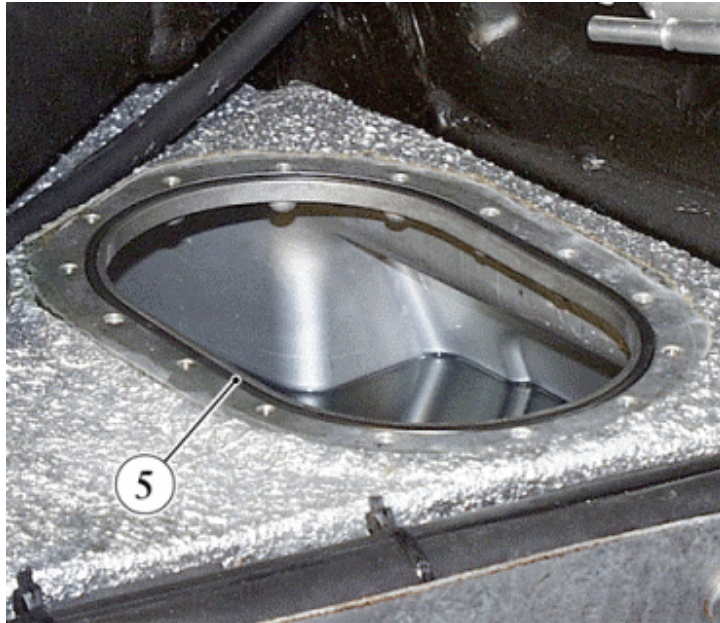
NOTES

The pressure regulator and/or the level indicator cannot be replaced individually, as they are an integral part of the pump assembly, which is supplied as a spare part as a complete, single unit.

- During handling, protect the pump unit from bump and from any kind of pollution.
- The new units are supplied in a special plastic packages, which must always be used for storage or handling.
- Store the new pump units in rooms protected from any outside or weather conditions.
- The storage period must not exceed four years. After this period, the proper working of the unit must be checked.

Re-assembly Notes

- Carefully clean all the parts that have been removed and dry them with compressed air.
- Check the state of the O-Ring **(5)**, as well as the tank and flange contact surfaces.



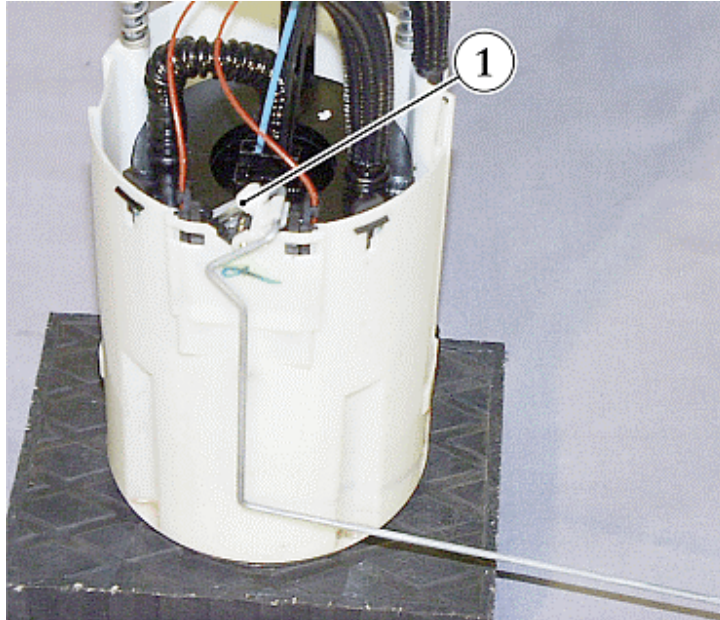
- Replace the O-Ring if damaged or crushed.
- To avoid bending and thus damaging the line when inserting the flange, position it perfectly with the tank holes before proceeding with fastening.
- Tighten the fastening screws to the **3,2÷4 Nm** torque, proceeding crosswise
- Using the Part No. **95971854** wrench, tighten the ring-nut to the **60Nm** torque.
- Re-assemble the parts that have been removed for the procedure.

For connection to the system, see Table **L** - ELECTRICAL SYSTEM.

B6.04 FUEL LEVEL INDICATOR



The level indicator (1) is secured to the fuel collector pan on the left-hand tank.

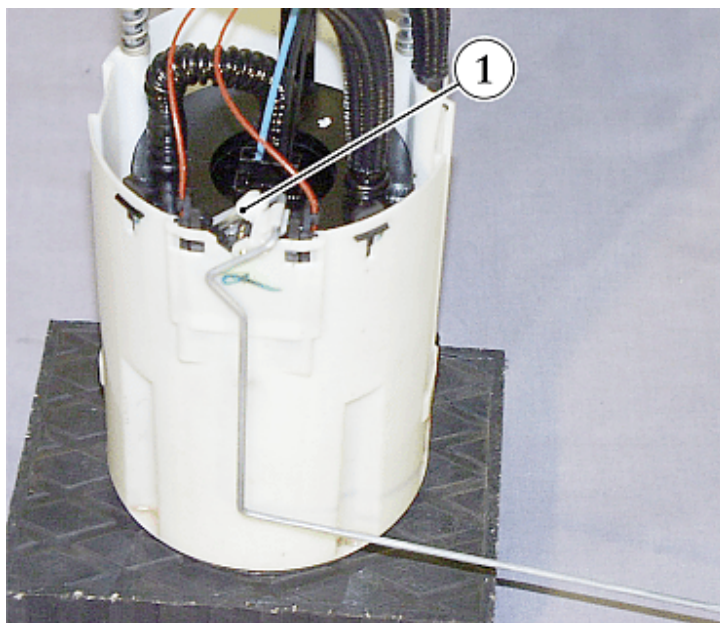


The indicator has a travelling arm, that is equipped with a float. Depending upon the position of the float, it transmits an electrical signal to the indicator instrument on the dashboard.

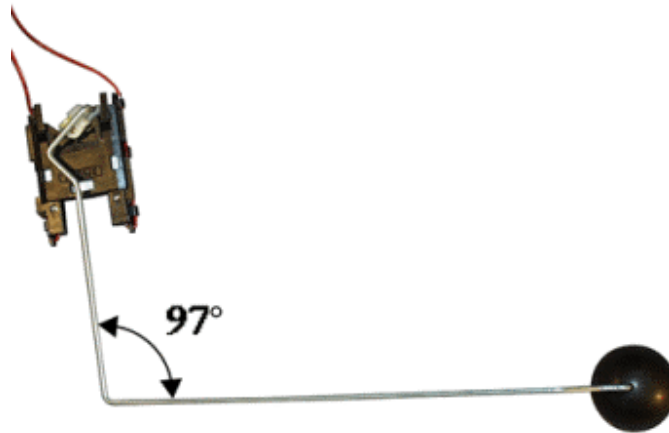
NOTES

The level indicator is supplied together with the complete pump unit.

- To gain access to the indicator, the flange and the pump unit must be removed ( B 6.03).



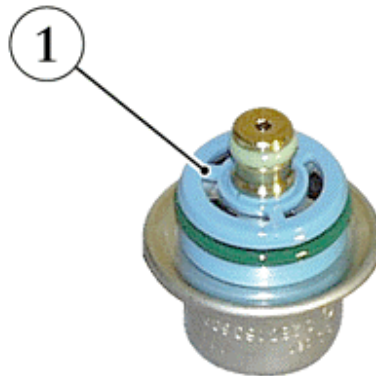
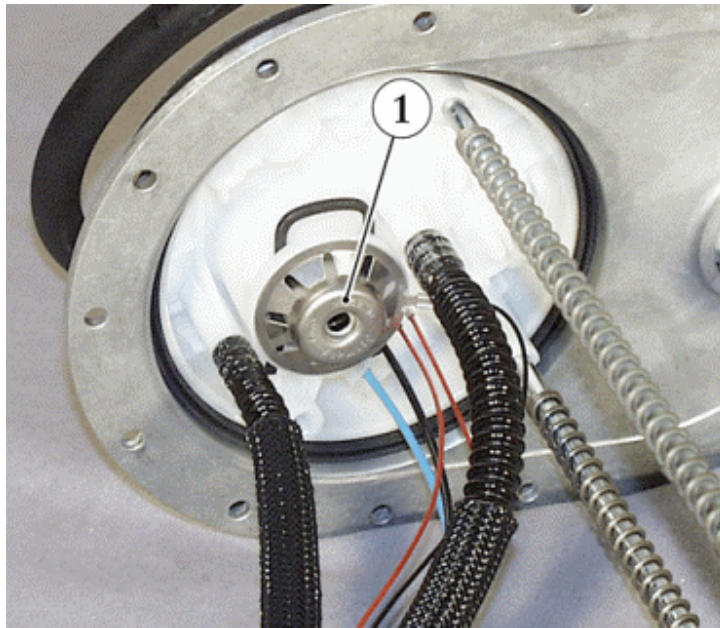
When re-assembling the pump unit, be careful not to bend the float supporting arm, as the refilling levels shown on the instrument panel will be affected.
The drawing illustrates the proper configuration of the float arm.



B6.05 PRESSURE REGULATOR



The pressure regulator (**1**) is installed at the base of the pump cover. It serves to keep the difference between the fuel pressure and the atmospheric pressure constant.



Therefore, the amount of fuel delivered to the combustion chamber depends solely upon how long the electro-injectors are open. These intervals are established by the ECU.
The regulator used is a diaphragm type regulator with a pressure retaining spring set at **3,6 bar**.

NOTES

The pressure regulator is supplied together with the complete pump unit.

- To gain access to the regulator the flange and the pump unit must be removed ( [B 6.03](#)).

B6.06 ROLL-OVER SHUT-OFF VALVE



The purpose of the valve is to prevent fuel leakage from the tanks and the fuel supply system in the event that the car overturns.

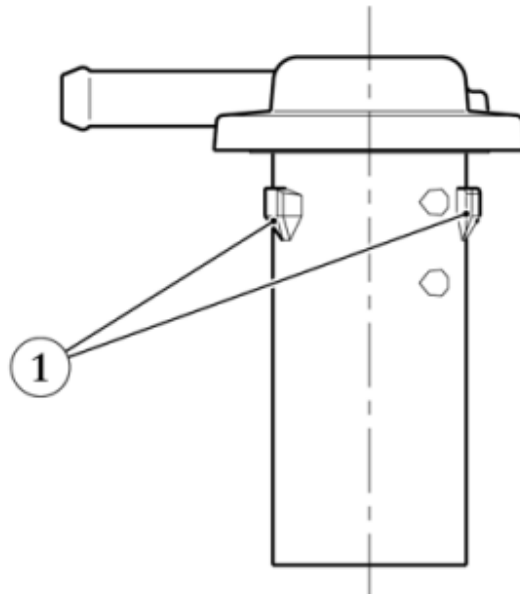
Each tank is fitted with two valves, one positioned on the pump unit support flange and the other on the rear part.

There is also a roll-over shut-off valve on the anti-evaporative emission system. It is inserted inside an outer container.

For these valves to work well, it is important to fit them in a vertical position because a tilted position can cause them to close.

Disassembly

- To remove the valve from its seat, turn it to free it from the fastening fittings (1) and then slide it off together with the gasket.



B6.07 FUEL TANK



The fuel tank consists of two elements that are interconnected ( B 6.01) and fitted in the structures of the chassis, in the front part of the engine compartment.

Each element is equipped with a support flange for the pump-filter unit for each bank. The pan inside the left-hand tank is fitted with a level indicator control.

A heat protection shield is positioned between the tank and engine to insulate the fuel against heat.



CAUTION

The fuel contained in the fuel tank and throughout the engine fuel supply system is a highly flammable product and under certain conditions it is also explosive.

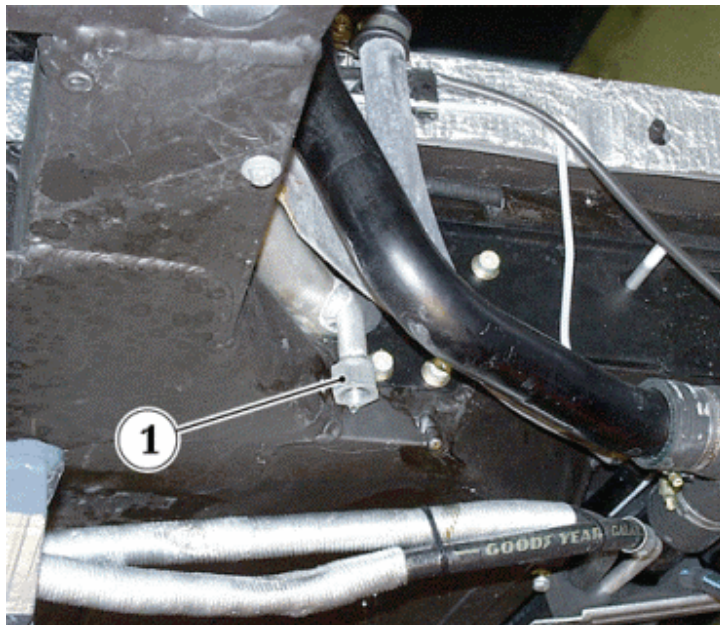
Do not smoke, cause sparking or use flames near the work area or in the immediate vicinity.

Disassembly

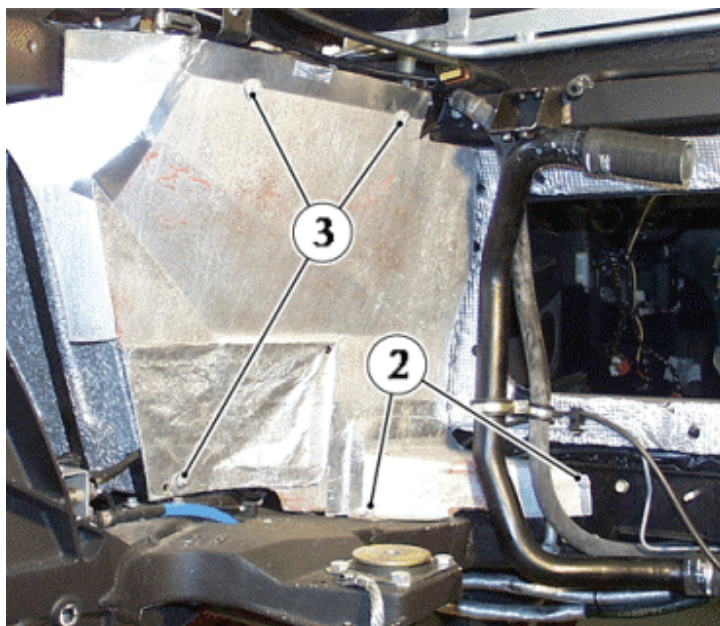
NOTES

The right-hand tank is symmetrically opposite the one described, therefore, the disassembly procedures are the same with the exception of the connection with the filler neck.

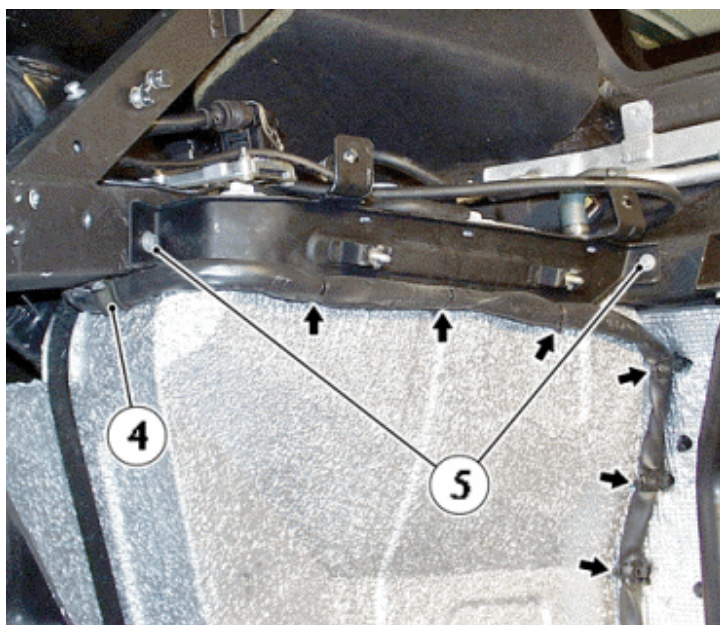
- Remove the engine-gearbox unit ( B 2.01).
- Drain out the fuel contained in the tanks by removing the cap (1) on the lower connection pipe.



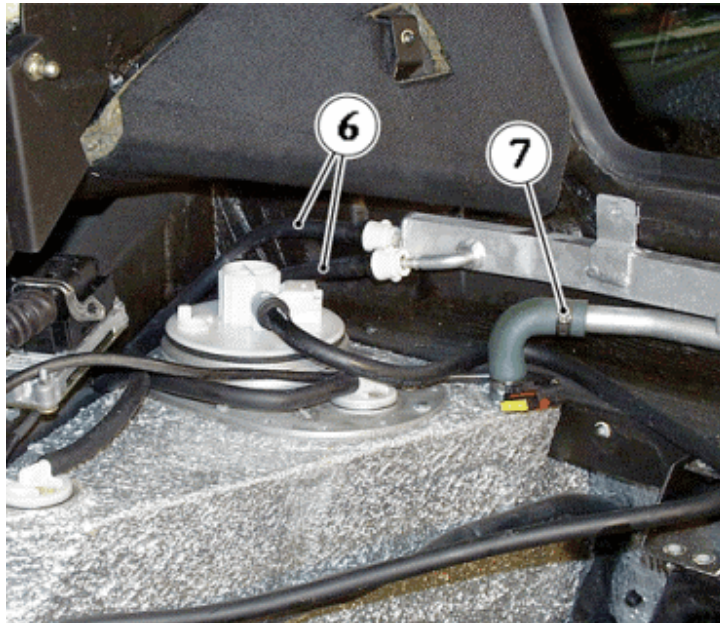
- Remove the heat protection shield by unscrewing the 2 lower screws (2) and the 3 nuts (3) fastening it to the supporting structures.



- Detach the bracket (4) and free the engine compartment cable from the clamps fastening it to the upper bracket and to the engine compartment-passenger compartment partition panel.
- Remove the upper bracket by unscrewing the 2 screws (5).



- Detach the roll-over shut-off valve lines **(6)** from the fuel vapour separator.
- Open the clamp **(7)** on the union connecting the tank to the separator.

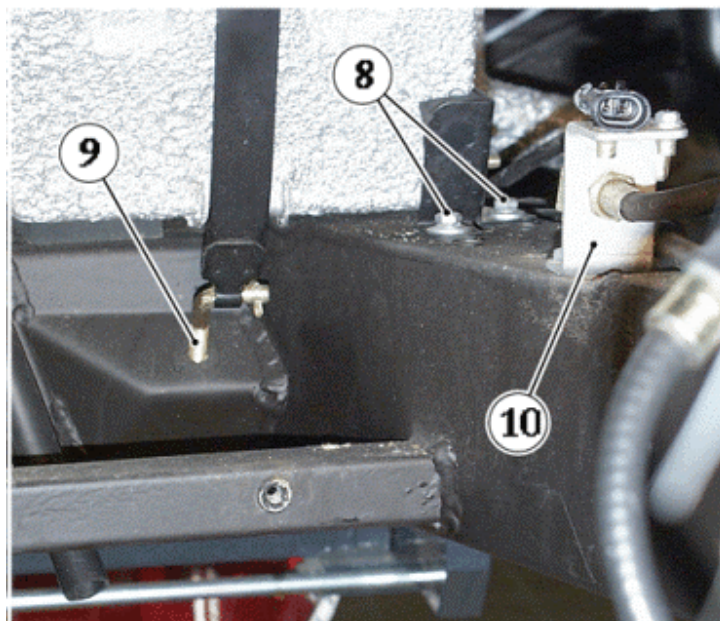


- Detach the fuel pump connector from the cover.

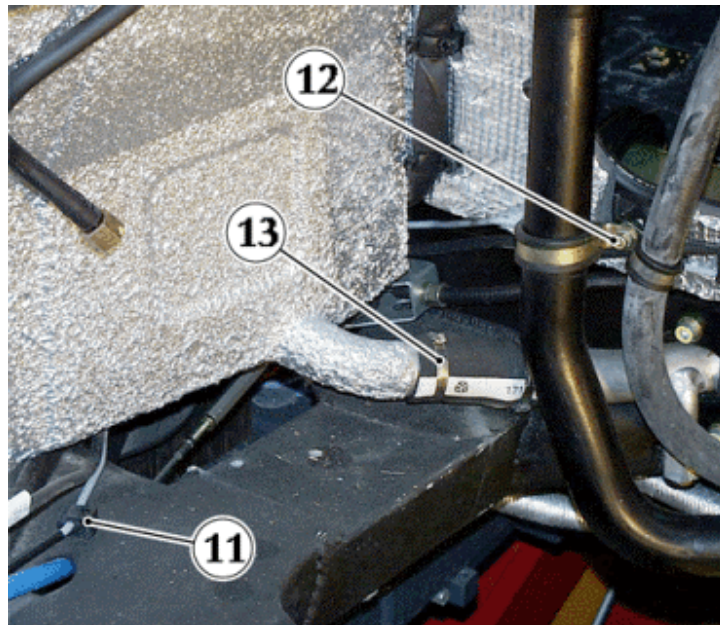
NOTES

When removing the RH tank it is necessary to detach the pressure sensor's connection to the system (👉 C2.09).

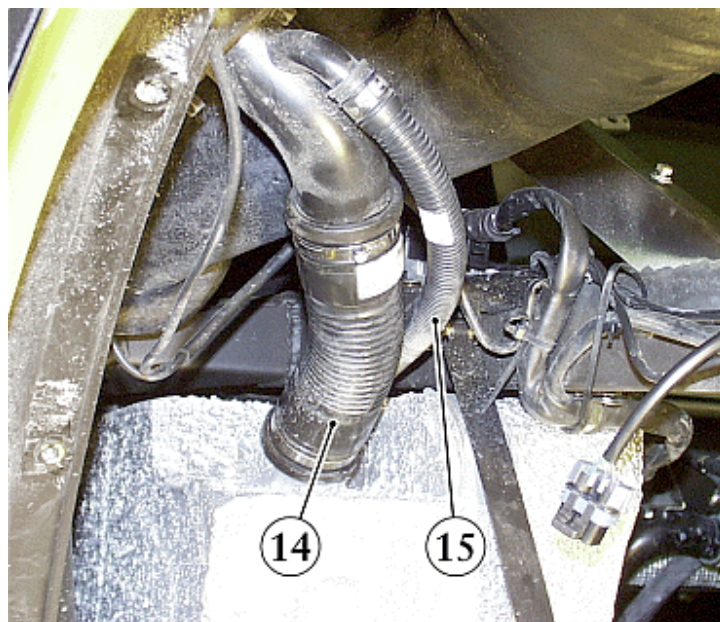
- Remove the lower bracket on the tank by unscrewing the 2 screws **(8)**.
- Free the threaded stay bolt **(9)** for the band securing the tank to the chassis.
- It is advisable to detach the supporting bracket **(10)** from the chassis to avoid the risk of damaging the ABS sensor cable and/or crushing the brake pipe.



- Slide the pipe off of the block (11).
- Unscrew the nut (12) fastening the bracket that supports the water pipe and shift the pipe towards the centre of the car.
- Open the clamp (13) on the tank connecting pipe union and detach the union from the tank.

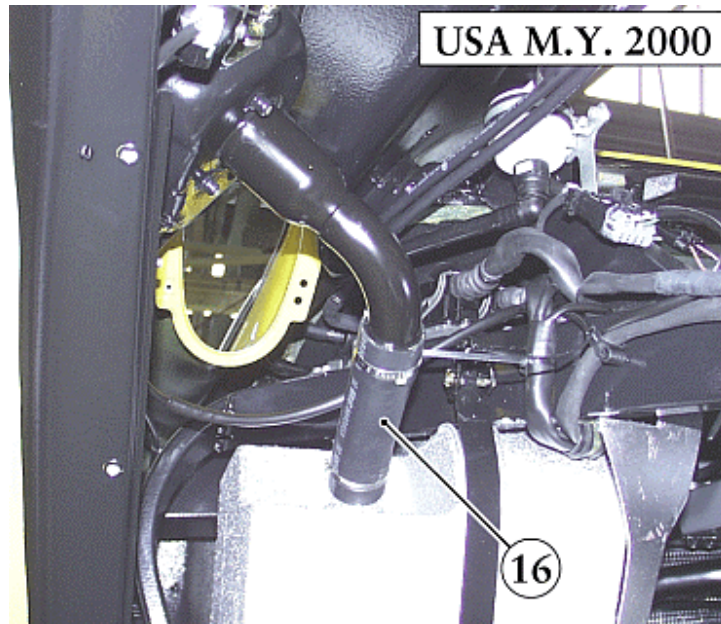


- From the tank side, open the clamps on the pipes (14) and (15) connecting to the filler neck and slide them off of the tank.



Note for the US M.Y. 2000 version

This version has only one connection tube (16) between the filler neck and the tank.



For disassembly of the filler neck (👉 [M 2.16](#)).

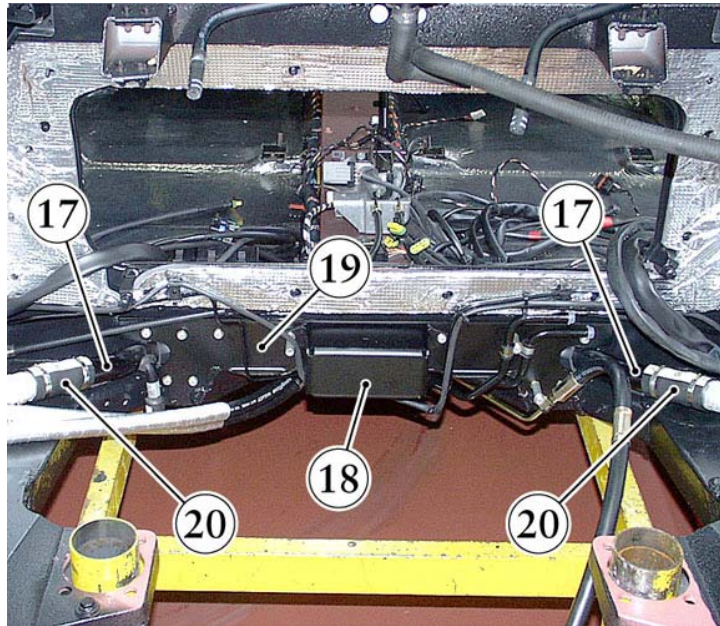
- Remove the complete tank unit from the chassis, lifting the front end and turning it towards the centre of the car.

Remove the pump-holder flange (👉 [B 6.03](#)) and proceed with replacement or inspection procedures.

Replacing the lower pipe connection for the tanks

After having removed the tank's protection shields it is possible to replace the pipe (17) which connects the tanks in the lower part.

- If still installed, remove the impact energy absorber housing (18) from the chassis' lower cross member.
- Undo the fastening screws and the stud bolts which also fasten the underfloor line brackets; then remove the guard (19) covering the pipe (17) on the chassis' lower cross member.
- After having detached the two sleeves (20) connecting to the tanks, remove the pipe (17) by pulling it upwards.



Re-Assembly Notes

- Refit the tank following the same procedures described in reverse order and always use new clamps for fastening the pipes and unions.
- Refit the engine-gearbox unit ( [B 2.02](#)).

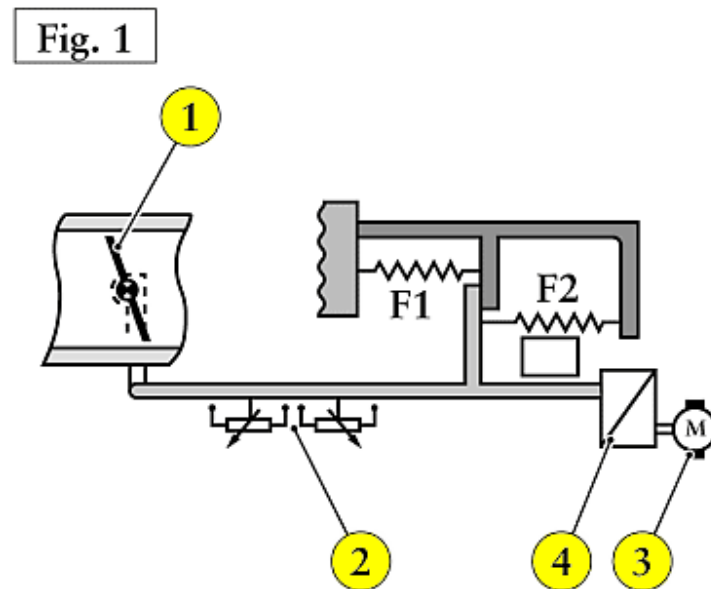
B6.08 MOTOR-DRIVEN THROTTLE BODY



The motor-driven throttle body (**BOSCH DV-E5**) is installed between the air flow meter and the engine plenum chamber.

This device is also internally supplied with a throttle valve, a direct current motor and angular throttle position sensor (potentiometer).

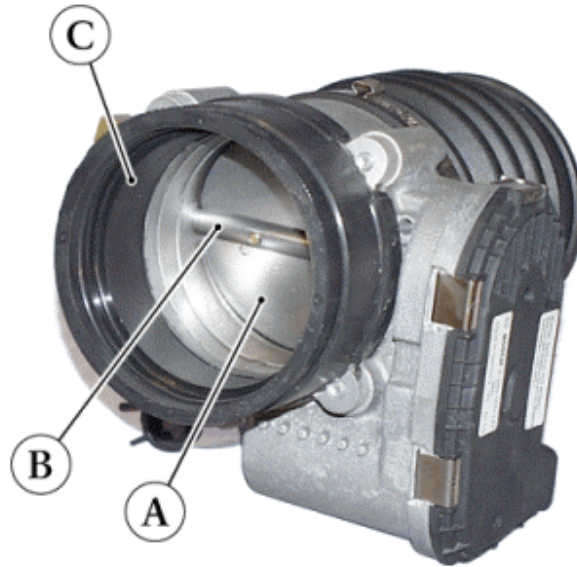
See Paragraph ( **C2.05**) for information on the operation of the potentiometer.



Key for Fig. 1

- 1 - Throttle
- 2 - Potentiometers
- 3 - Electric motor
- 4 - Gears

The engine is directly controlled by the ECU and it acts upon the throttle **(A)** shaft **(B)** by means of a two-stage gear system (see **fig. 1**) which makes it possible to obtain high torque levels with low power consumption. As the motor-driven throttle body is very sensitive to vibrations, it is connected to the plenum chamber with a special rubber coupling **(C)** of a defined hardness and length.



The throttle has been designed to be controlled by the MOTORONIC ECU, according to precise speed principles.

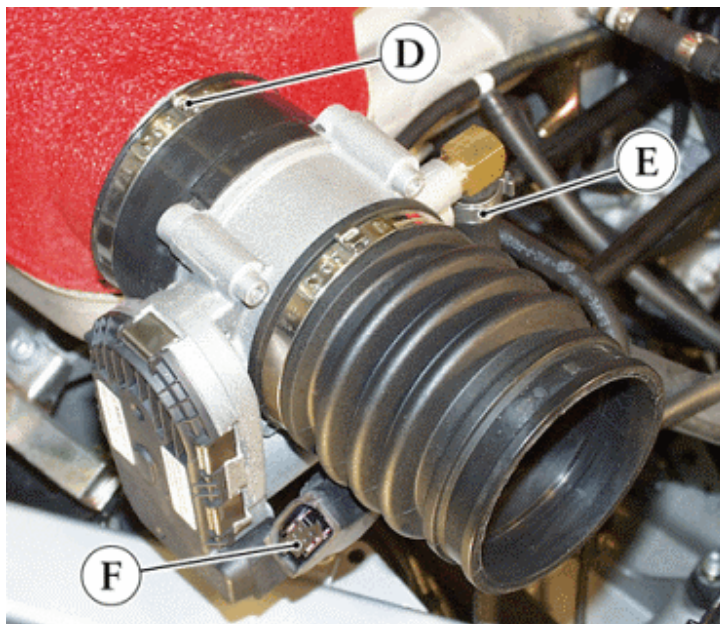
IMPORTANT

Do not supply power to the throttle by means of different systems as this could damage the device.

If the throttle breaks down, the engine is brought to the recovery mode, which corresponds to idling. Two throttles, one per bank, are present in the system.

Disassembly

- Detach the air flow meter ( C 2.03).
- Release the clamp (1) on the union connecting to the plenum chamber cover.
- Release the clamp (2) and slide off the pipe connecting to the blow-by system.
- Disconnect the injection cable connection (3).



- Remove the complete throttle body unit.

IMPORTANT

Do not place the device on any elements that could cause vibrations.

To ensure proper operation, the device should be installed so that the throttle shaft (B) is in a horizontal position (permissible tolerance $\pm 20^\circ$).

After replacing the motor-driven throttle body, the self-learning cycle must be performed ( C 6.05).

For connection to the system, see Table **S** and **T** - ELECTRICAL SYSTEM.

B6.09 CHECKING THE FUEL SUPPLY SYSTEM PRESSURE SEAL



Specific Equipment

Precision pressure gauge **95971243**

The fuel supply pressure is determined in each bank, by the pump immersed in the fuel tank.

To check fuel supply pressure, proceed as follows:

- Turn the ignition key to the "**STOP**" position.
- Remove the cap on the injector rail union.
- Connect the precision pressure gauge **95971243** union (**A**) onto the injector rail.



- Start the engine and allow it to idle.
- Check whether the pressure read on the pressure gauge is **3.45 bar**.
- Turn off the engine and check to ensure that the pressure drops and remains steady at **2.7 ± 0.3 bar, for at least one hour**.

NOTES

As the fuel supply circuits are separate for each bank, the pressure test must be performed on both circuits.

Should the values prove to be beyond the tolerance limits, check the pipes for leaks and/or replace the fuel pump ( [B 6.03](#)).

B7.01 AIR INTAKE SYSTEM OUTLINE

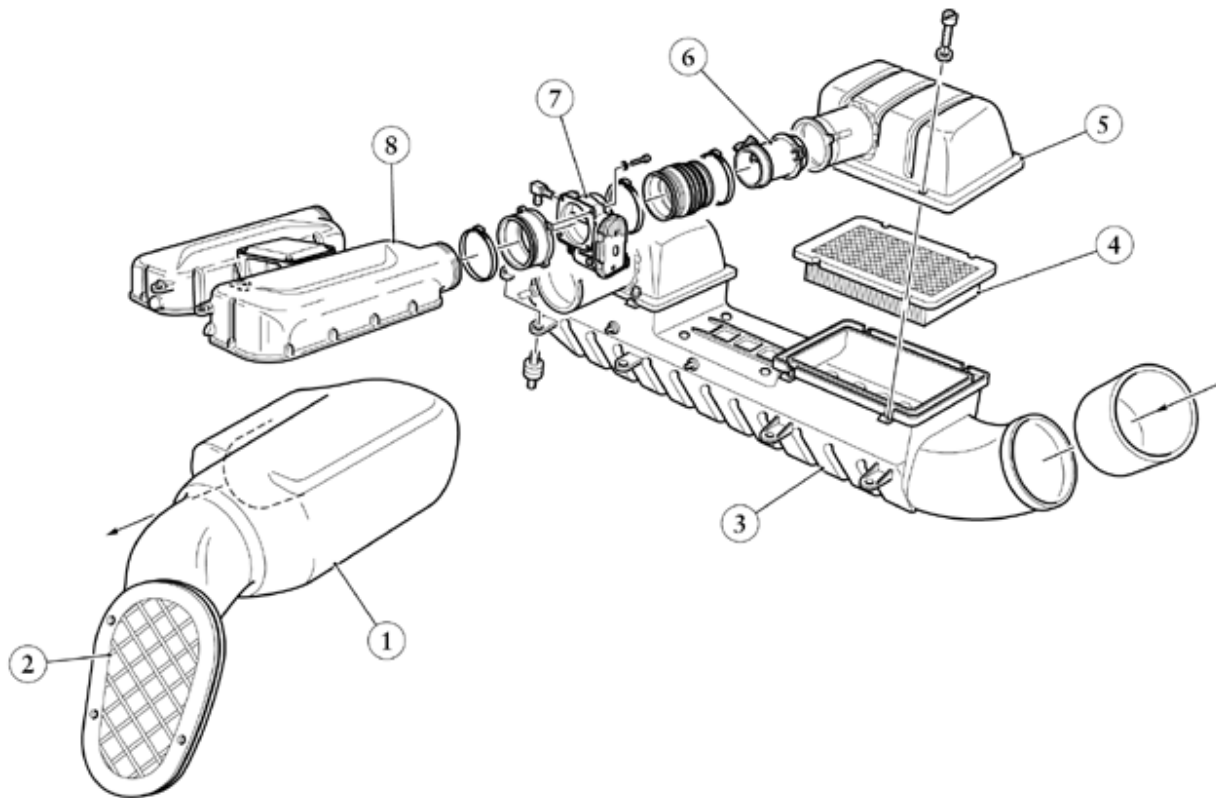


Outside air flows into the engine compartment through an air flow duct-resonator (1), found above the left-hand rear wheelhouse. It is equipped with a protective grill (2). From the air flow duct-resonator, the air enters into the air intake (3) and is directed towards the filter cartridges (4).

All filtered air flow reaches the air flow meter (6) through a duct in the cover (5) and the meter transmits a signal to the Motronic control unit regarding the air mass intake.

The motor-driven throttle body (7) is connected to the meter for all air flow. The opening of this device is electrically controlled by the Motronic control unit.

The two metered air flows enter the plenum chamber (8) where they are fractionated and directed to the intake manifold, and then mixed with the fuel. The throttle devices in the plenum chamber are moved by the actuators, which are controlled by solenoid valves ([B 7.04](#)).



IMPORTANT

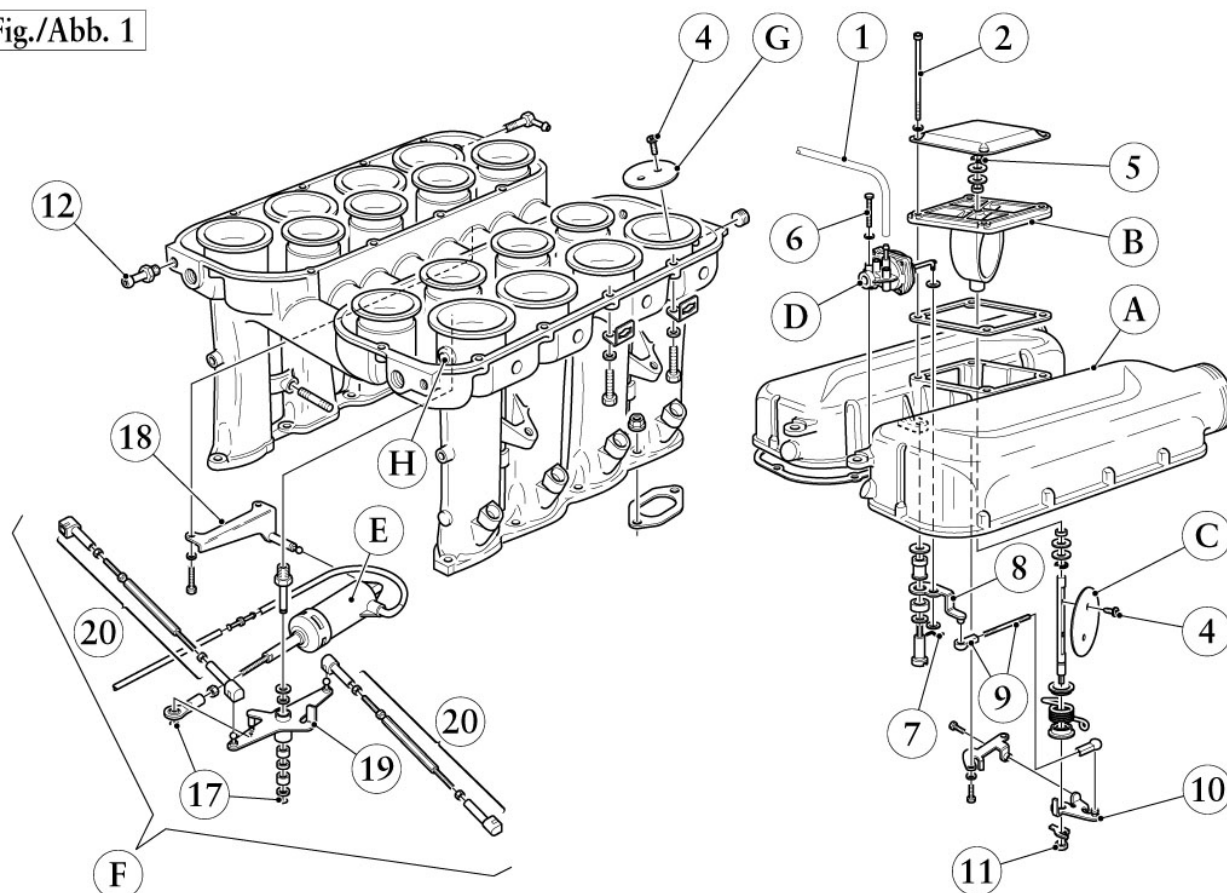
To ensure that the engine runs well, it is essential that the air filter cartridges be replaced in accordance with the intervals prescribed in the "PROGRAMMED MAINTENANCE PLAN".

B7.02 INTAKE MANIFOLD



The engine intake manifold is equipped with an upper cover (A, Fig. 1) with a support (B) for the air compensating throttle (C) and the pneumatic capsule (D). The actuator (E) is secured underneath the manifold, along with the device (F) for the opening of the throttles (G) inside the inlet lines for the mixture in the cylinders. The intake manifold throttles are secured in pairs on shafts (H) that rotate on the manifold body bushings. Each bank is equipped with a screw for the synchronisation of the two shafts. The throttles are supplied "factory-adjusted" and their positioning should not be changed except in the case of replacement of a component of the control system (tie-rods, levers, pivots, etc.) or when the idling rpm is being set.

Fig./Abb. 1



The injectors ([C 3.02](#)) connected to the MOTRONIC control unit for the injection-ignition system and to the fuel supply system distributor (injector rail) ([B 6.01](#)) are installed on the inlet lines of each bank.

Tightening torques

Screw fastening the cover
Screw fastening the throttle support
Screw fastening the pneumatic capsule
Screw fastening the throttle
Nut fastening the lever on the throttle shaft
Screw fastening pipe union

Nm

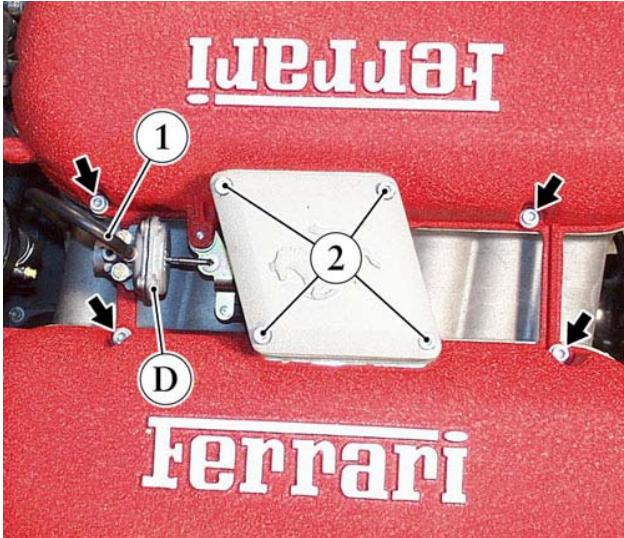
5÷10
5÷6,5
3,4÷4,6
2,1÷2,8
3,4÷4,6
40÷50

Product

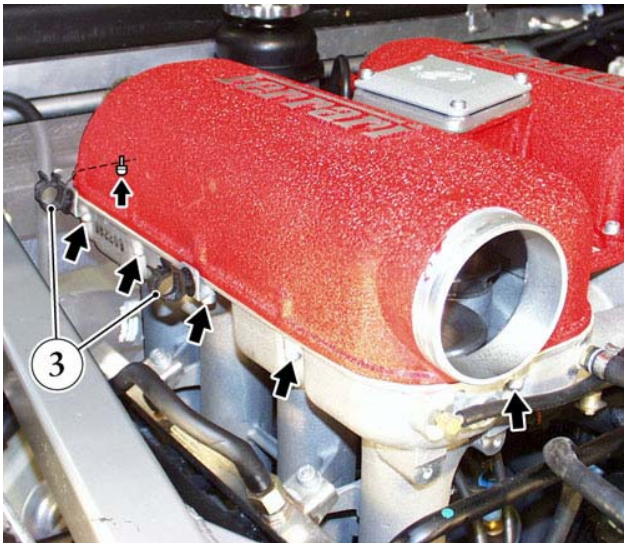
Thread lock **Loxeal 24-18**

Removing the manifold cover

- Detach the motor-driven throttle bodies from the cover (👉 [B 6. 08](#)).
- Detach the vacuum pipe (1) from the pneumatic capsule (D).
- Unscrew the four screws (2) fastening the cover and the throttle support.
- Unscrew the four inner screws on the two banks.



- Open the clamps (3) on the outer sides of the manifold and slide out the fuel pipes from each bank.
- Unscrew the fastening screws on the outer perimeter of the manifold body cover.



- Remove the entire cover including the gasket.

IMPORTANT

Protect the manifold with a clean cloth to prevent foreign matter from coming into contact with the throttles and thereby affecting their closure.

Re-assembly notes

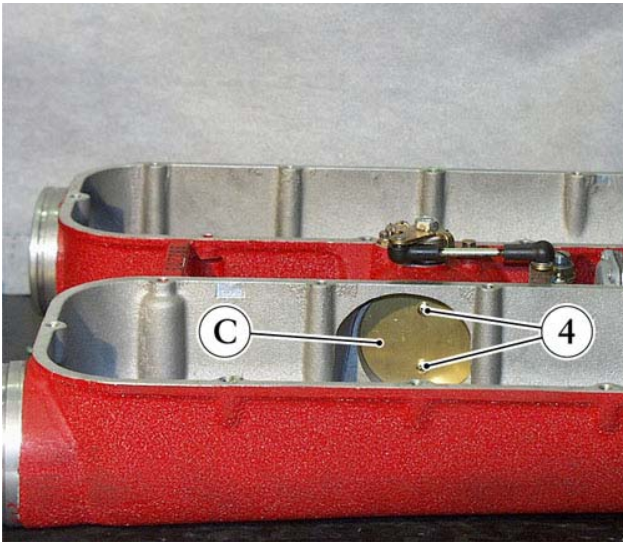
- Clean the contact surface on the cover and the manifold and mount a new gasket.
- Tighten the screws (2) to the prescribed torque.

Replacing cover parts

The compensating throttle (C) can be replaced when the cover has been removed from the manifold.

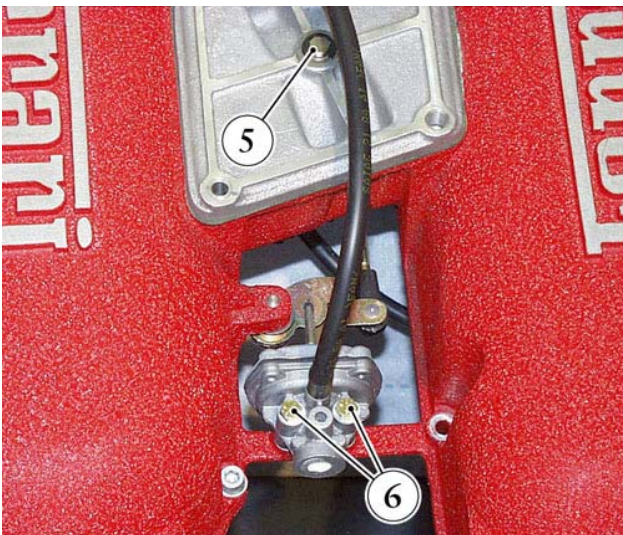
- Turn the cover over and unscrew the screws (4) fastening it to the small control shaft. Then remove the

throttle.

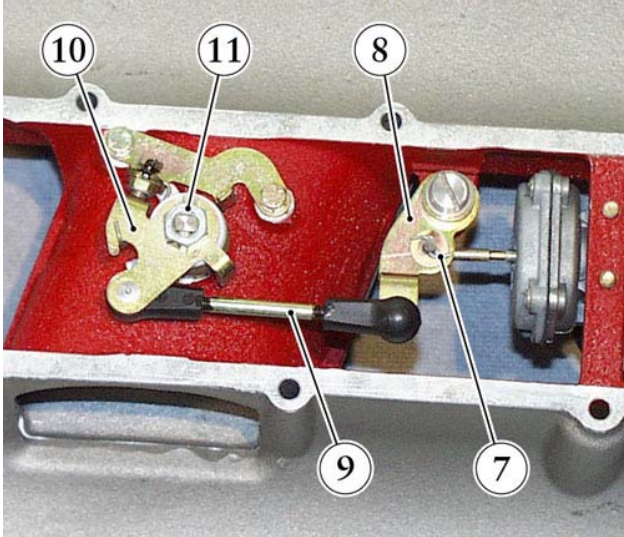


Proceed as follows for replacement of the parts supporting and moving the throttle.

- Remove the throttle shaft stop ring **(5)**.
- Unscrew the screws **(6)** fastening the pneumatic capsule to the cover.



- Remove the split pin (7) and slide off the pneumatic capsule control pin from the idler arm (8). Then remove the pneumatic capsule.
- Detach the stay rod (9) from the throttle shaft control lever (10).
- Slide out the shaft including the lever and check spring and remove the shims. Special seal rings are installed on the support (B, Fig. 1). They maintain the required lubrication in the throttle shaft contact zones.
- Unscrew the nut (11) and slide off the control lever to replace the throttle shaft.



Re-assembly notes

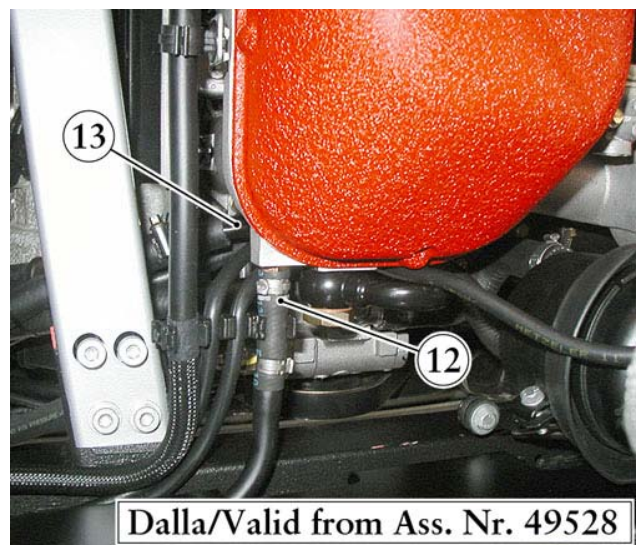
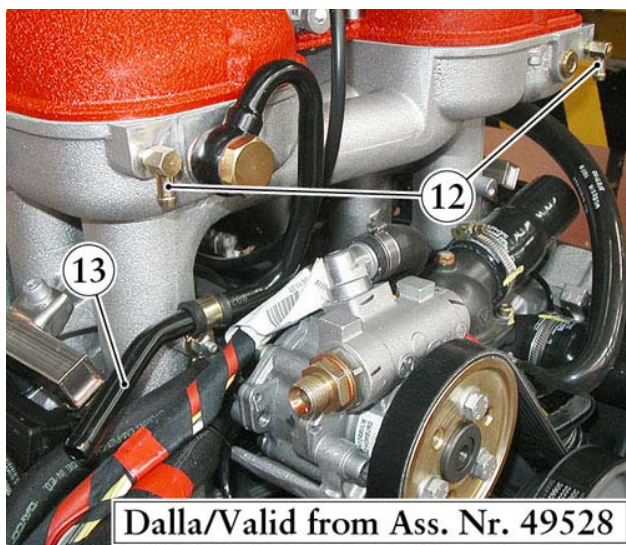
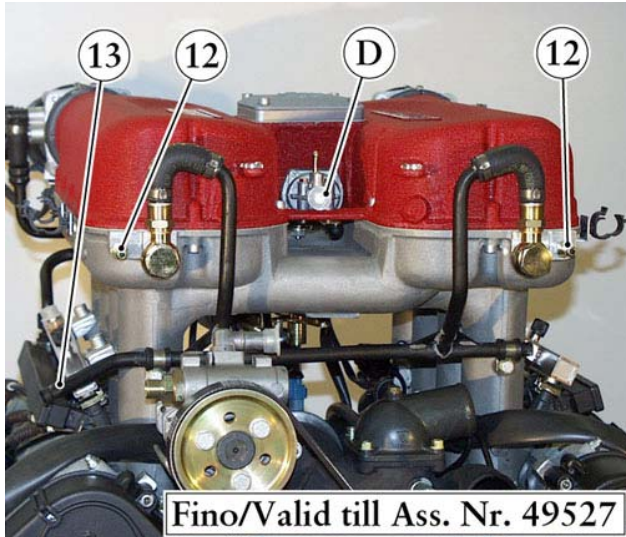
- Tighten the screws (6) and (4) to the prescribed torque and bevel them on the throttle shaft.
- Tighten the nut (11) to the prescribed torque.
- Bend one tab on the safety washer.

Removing the complete intake manifold unit

NOTES

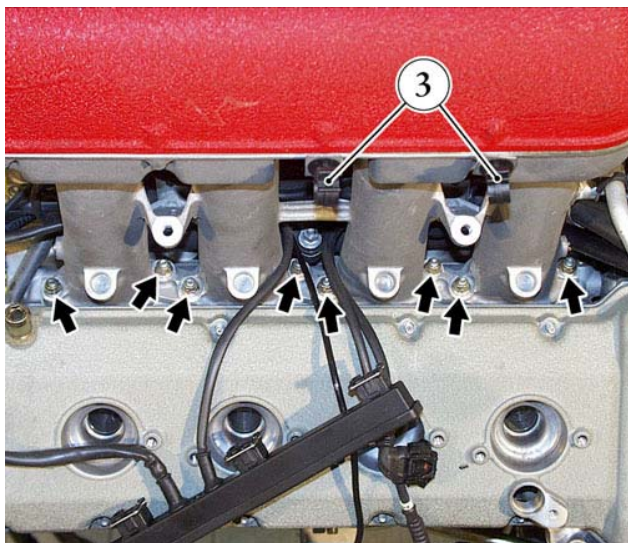
The complete manifold unit can also be removed with the engine installed in the car. The figures show an engine on a work bench to provide a better understanding of the procedure.

- Detach the motor-driven throttle bodies from the cover (👉 [B 6. 08](#)).
- Detach the vacuum pipes from the pneumatic capsule (D, Fig. 1), from the unions (12) on the front and rear parts of the manifold and from the servo brake pipeline (13).

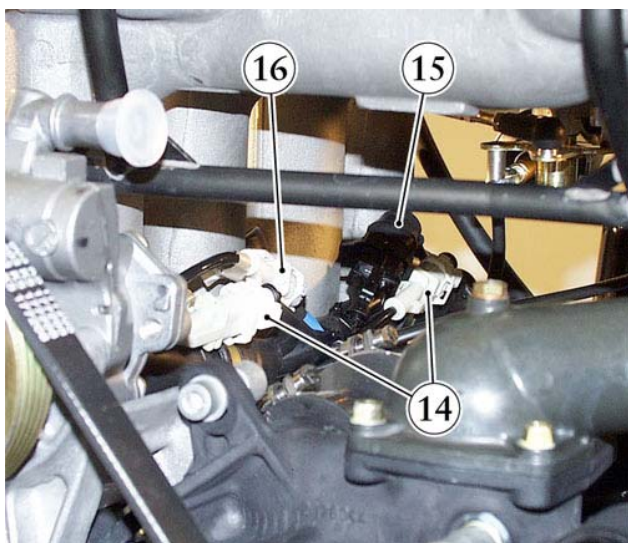


- To facilitate disassembly, it is advisable to disconnect the injection harness connectors from the injectors and remove the latter together with the rails (👉 [C 3. 02](#)).

- Open the clamps **(3)** on the outer faces of the manifold and slide out the bank cables.
- Unscrew the nuts fastening the manifold to the heads.



- Detach the brackets supporting the injection cables and the connector linking the two banks, from the rear part of the manifold.
- Detach the detonation sensor connectors **(14, white colour)**, the head phase sensors connectors **(15, black colour)** and the solenoid valve connectors **(16)** for the timing variator from the injection cables and release them from the fastening clamps.



- Detach the right-hand injection cable connector from the temperature sensor on the connecting duct for the water manifolds.
- Remove the complete manifold unit from the heads and keep the gaskets.

IMPORTANT

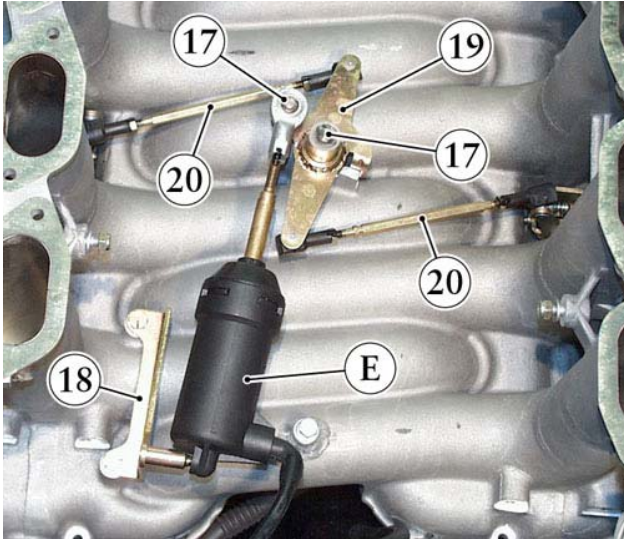
Protect the head intake ducts with a clean cloth to prevent foreign matter from entering the combustion chambers.

Re-assembly notes

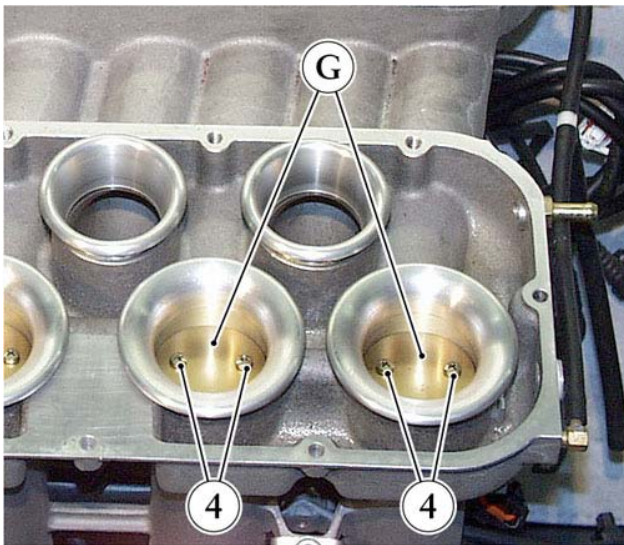
- Clean the contact surfaces on the manifold and on the heads and fit new gaskets.
- Secure the sensor connectors for the injection cables in their original positions.

Replacing manifold parts

- To remove the actuator (**E**), slide out the lock ring (**17**) on the idler arm pin and detach it from the support (**18**).
- To disassemble the idler arm (**19**), detach the tie rods (**20**), remove the lock ring (**17**) and slide all the parts out.



- After having removed the cover, the manifold throttles (**G**) can be replaced by unscrewing the screws (**4**) fastening them to the small drive shaft (**H**).

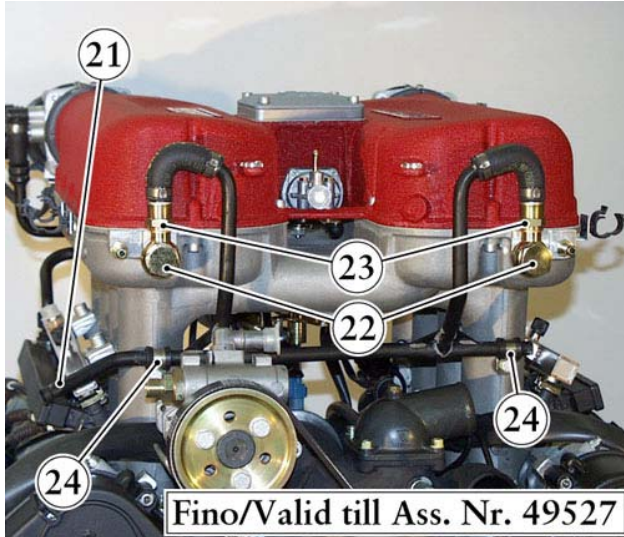


Valid UP TO Ass.ly No. 49527

There is a rigid pipe (21) from the brake servo system fitted on the manifold. This pipe is connected, by means of two sleeves, to the pipe unions (22) for each of the manifold's delivery line.

On the pipe unions (22) for each delivery line, there is a check valve (23) fitted.

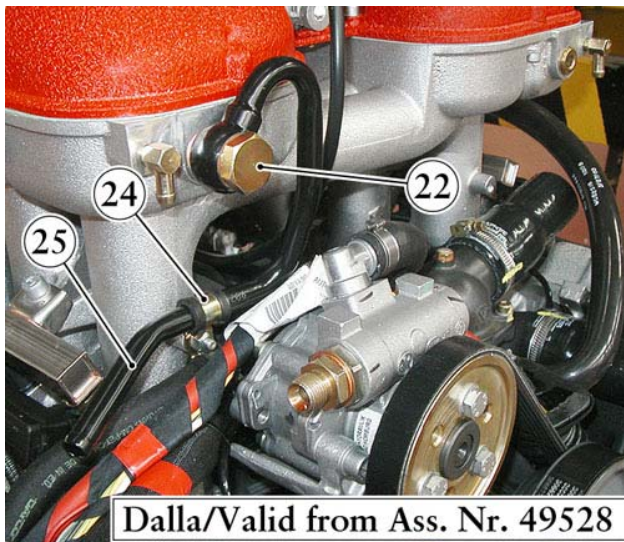
- To remove the pipe (21), complete with the sleeves, the pipe unions must be detached from the manifold and the clamps (24) must be opened.

**Valid FROM Ass.ly No. 49528**

There is a rigid pipe (25) from the brake servo system fitted on the manifold. This pipe is connected to the manifold's right-hand delivery line with a pipe union (22).

The only check valve on the circuit is fitted in position with the brake servo ( G 2.01).

- To remove the pipe (25), the pipe union must be detached from the manifold and the clamp (24) opened.

**Re-assembly notes**

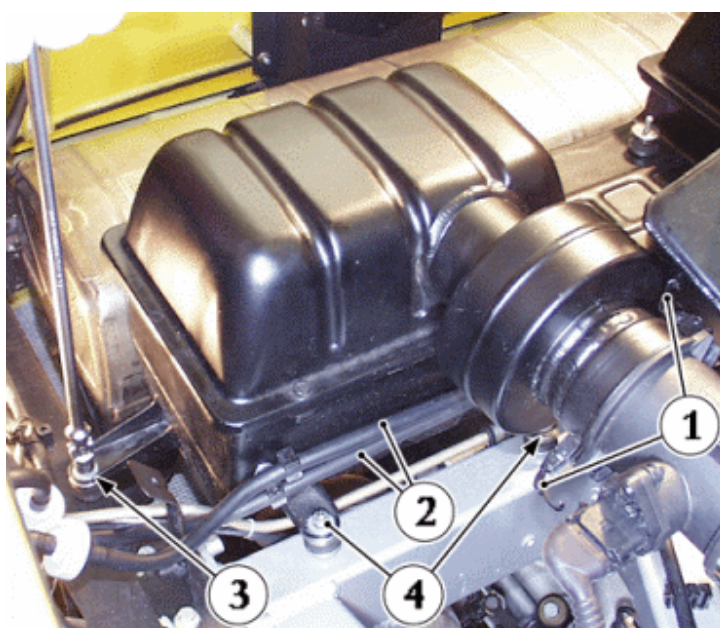
- Tighten the screws (4) to the prescribed torque and bevel them on the small drive shaft.
- Lock the pipe union screws (22) on the manifold to the prescribed tightening torque, placing new copper gaskets in between the parts.

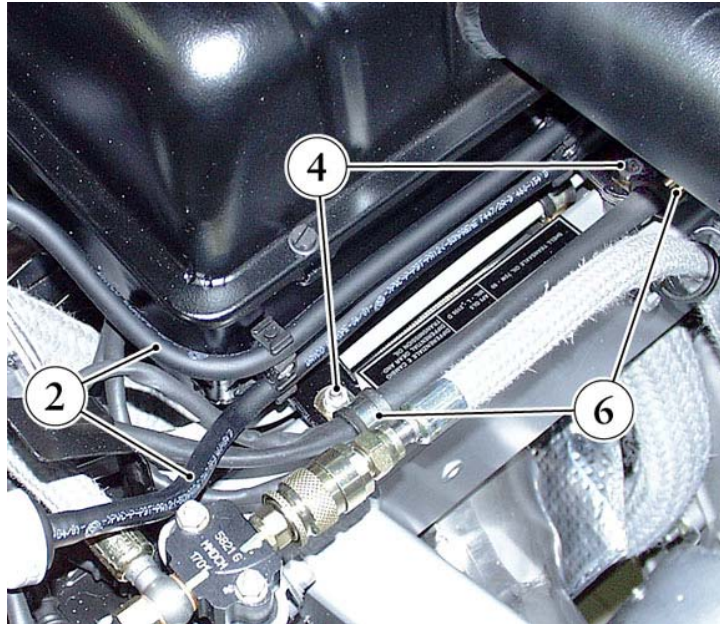
B7.03 AIR INTAKE



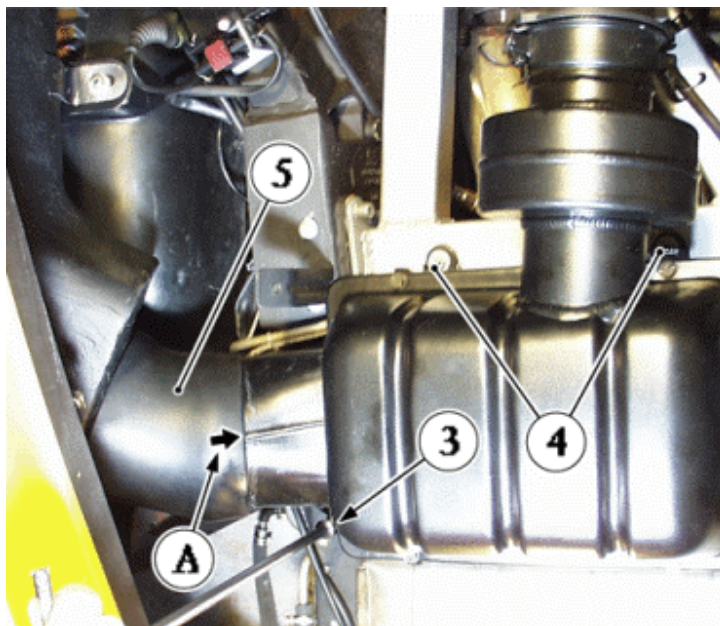
Detaching the intake

- Detach the expansion tank, ( [B 5.05](#)) lasciandolo but leave it connected to the system.
- Release the air flow meter locks (1).
- Detach the vacuum pipes from the supporting blocks (2).
- Unscrew the two nuts (3) fastening the side of the air intake to the chassis and the four fastening nuts (4) for the gearbox supporting frame.
- In the electronically-controlled version, the supporting brackets (6) for the F1 system device cables are fitted under the two nuts on the right-hand side.





- Remove the complete air intake unit including filter cartridges and covers, by sliding it out of the rubber coupling (5).
- During re-assembly, be careful to position the coupling with the arrow (A) pointing towards the air intake.



B7.04 OUTLINE OF THE PNEUMATIC ACTUATING SYSTEM



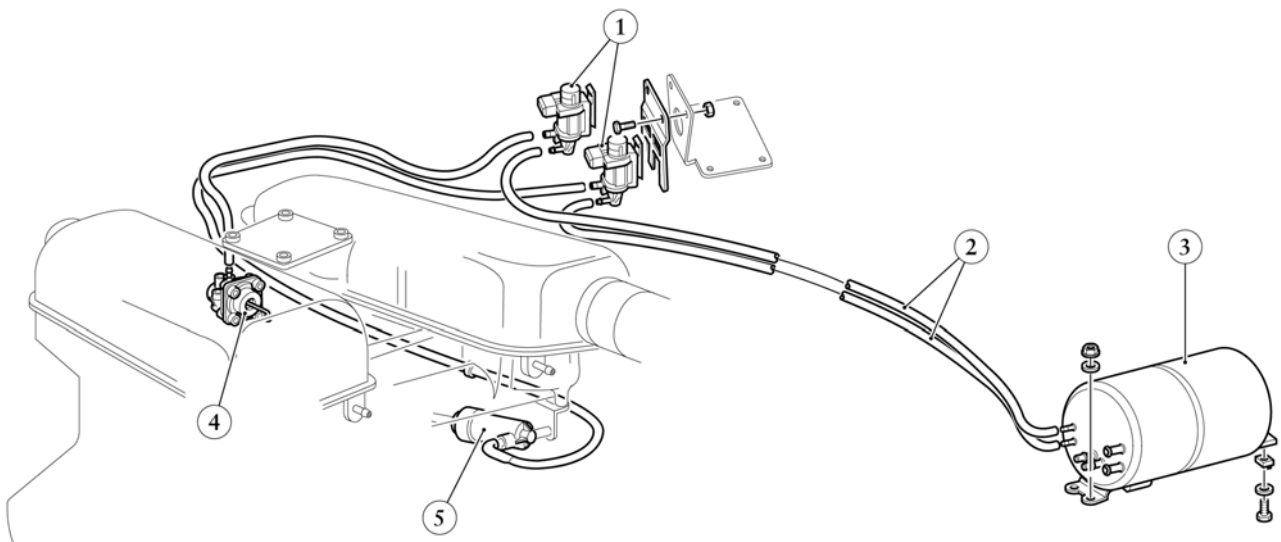
IMPORTANT

The connecting pipelines must be in good condition - without excessive bends, blockage or tears – to ensure the system proper functioning.

Modular Manifold (Fig. 1)

The system is made up of two solenoid valves (1). They are secured to the Motronic supporting bracket and connected, by means of pipes (2), to the vacuum tank (3) which is found under the right-hand rear mudguard. The engine ECU determines the opening of the solenoid valves, which, in turn, control the pneumatic capsule (4) and the actuator (5), both of which are positioned on the plenum chamber (👉 C3.06). The pneumatic capsule (4) controls the compensating throttle through a system of levers. The actuator (5) activates the intake manifold throttles, (👉 B 7.02) using an idler arm and ball-jointed stay rods.

Fig. 1

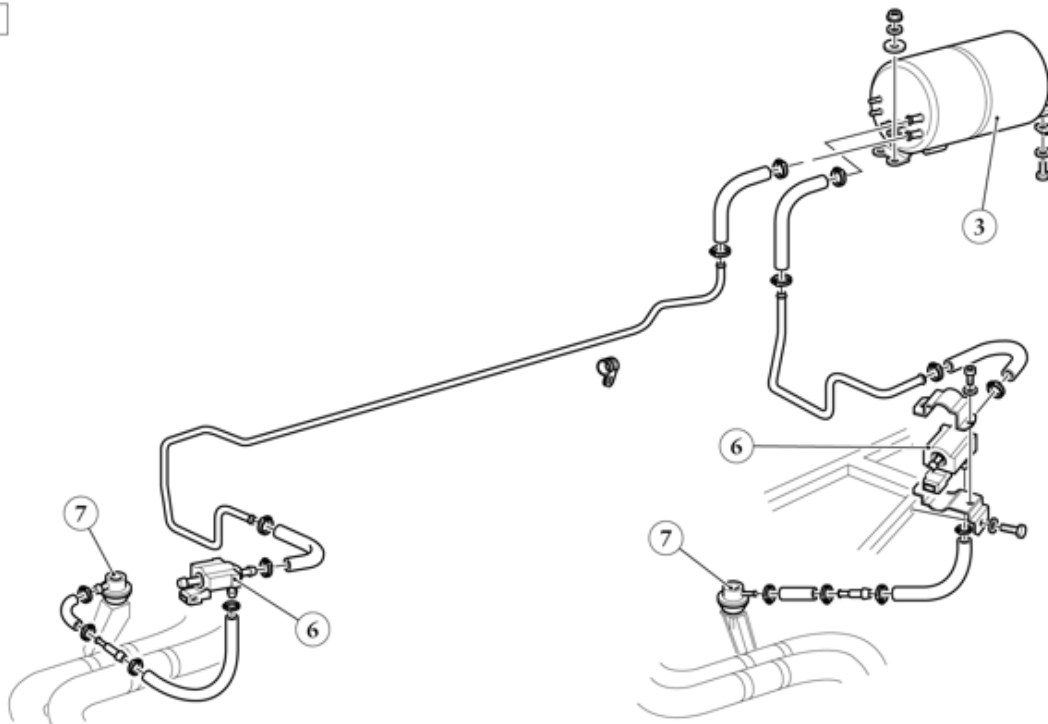


Exhaust by-pass system (Fig. 2)

The system is composed of two solenoid valves (6) fastened to the chassis, on the rear part of the engine compartment. These solenoid valves are both connected to a pneumatic throttle valve (7), fitted on the exhaust terminal, and to the vacuum tank (3).

The Motronic ECU for bank 1-4 determines the opening of the solenoid valve according to the engine revolutions and the engaged gear (👉 C 3.05).

Fig. 2



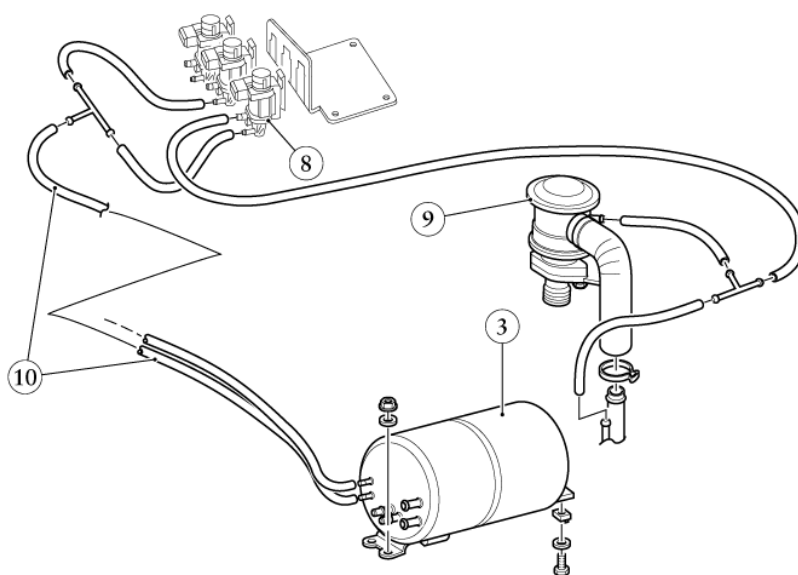
Secondary air injection, (Fig. 3) (US M.Y. 2000 version)

The solenoid valve **(8)**, fitted next to those of the modular manifold, is controlled by the Motronic for opening/closing the two pneumatic valves **(9)** which effect the injection of secondary air into the exhaust manifolds.

The piping **(10)**, which connects the vacuum tank **(3)** to the solenoid valve **(8)**, is connected by a 3-way union also to the solenoid valve which controls the actuator **(5, Fig. 1)** positioned under the modular intake manifold.

Fig. 3

USA M.Y. 2000



C1.01 SPECIFICATIONS



Injection

Type:

BOSCH ME 7.3

ECU:

BOSCH SG-ME7-3H

Ignition

Static ignition

Ignition order:

1-8-3-6-4-5-2-7

Initial spark advance, idling (1050 revs/min):

6° ±3

Single ignition coil:

BOSCH ZS-K-1X1

Spark plugs:

NGK PMR8B

The injection/ignition system control is integrated in a single microprocessor Electronic Control Unit (ECU, one per bank).

In this way, both the engine performance and the fuel consumption are enhanced, improving the car's handling and optimising the engine operation with partial loads.

IMPORTANT

The system which controls the injection/ignition is self-adjusting and does not require any regulation.

The system is made up of the following systems:

- ELECTRIC/ELECTRONIC system;
- AIR INTAKE system;
- FUEL SUPPLY system;
- EMISSION CONTROL system;
- exhaust temperature control system.

The system sensors transmit the following signals:

- engine revolution speed and position (in relation to the TDC);
- intake air temperature and volume;
- throttle opening position and speed;
- accelerator pedal position;
- coolant temperature;
- catalytic converter internal temperature;
- mixture titre;
- detonation;
- car speed;
- ignition key in running position;
- battery voltage;
- braking system activated;
- clutch activation;
- compressor activated;
- air conditioning system activated;
- engine supply cut-off;
- parameters communicated via CAN and parameters from other systems (ABS, ASR, electronically-controlled gearbox, etc...).

C1.02 SYSTEM DESCRIPTION



Each of the two engine banks has its own ignition system governed by a microprocessor-controlled **ECU** which receives the signals related to the use of the car from the sensors positioned on the engine. It also directly controls the actuators which manage the engine operation. The components of the two systems are interchangeable.

The ECUs communicate with each other, and with other systems, via the **CAN** (Controller Area Network) line, to optimise the running of the engine.

Each system therefore, basically consists of an ECU and a set of sensors and actuators.

Sensors

- Engine timing sensor
- Angular velocity sensors
- Air flow meter
- Coolant fluid temperature sensor
- Throttle potentiometer (integrated into the motor-driven throttle body)
- Oxygen sensor
- Detonation sensor
- Accelerator pedal position sensor
- Air temperature sensor (integrated into the air flow meter)
- Pressure sensor (only for the **Euro 3 - US** version)

Actuators

- Fuel pump
- Electro-injectors
- Motor-driven throttle (👉 [B 6.08](#))
- Coil
- Timing variator check solenoid valve
- Exhaust by-pass solenoid valve
- Compensating solenoid valve; modular manifold; canister cleaning; vapour on-off valves (only for the **US** version)
- Tank tightness check solenoid valve (**Euro 3 - US** version only).
- Secondary air solenoid valve (**US M.Y. 2000** version only)
- “**Check engine**” or “**Engine control system faults**” and “**Slow-Down**” lights
- Relay
- Secondary air pump relay (**US M.Y. 2000** version only)

All these components, together with the ECU, supply the Motronic ME 7.3 system with all the features of the: **EGAS** (Electronic **GAS** pedal)

This is a checking system for the engine which detects every situation as a torque requirement. The main element which determines the torque requirement is the accelerator pedal.

OBD II (On Board Detection and Diagnostic system)

This system identifies operative malfunctions, inside the engine checking system, in compliance with the regulations concerning emission checks.

RLFS (Return Less Fuel System)

This system prevents the fuel supply flowing back into the tank.

C1.03 OPERATING PRINCIPLE



The ECU which controls the functioning of the engine calculates the output values according to the signals received from the system sensors. In particular, it determines the injection time **t_j** and the **S.A.** (Spark-Advance).

Calculating the Injection Time

The injection time **t_j** is given by the sum of the following factors: **t_j = (t₁ + t₂ + t₃ + t₄) x t₅**

- t₁** This datum, which is the most important, is a function of the number of revolutions and the engine air intake.
- t₂** The factor **t₂** depends on the throttle position and the coolant temperature.
- t₃** This last factor corrects the **t_j** according to the battery voltage.
As the battery voltage decreases, it is necessary to increase the opening time of the electro-injectors in order to deliver the correct quantity of fuel to the cylinders.
- t₄** depends on the intake temperature.
- t₅** This factor is worth 1 when the system is functioning with an "**open loop**" while it can be worth from **0.8 to 1.2** when the system is functioning with a closed loop and corrects **t_j** on the basis of the oxygen sensor, in order to bring the air/fuel mix ratio to the stoichiometric value.

NOTES

The Motronic system ECUs can work with battery voltages of up to 6V.

Closed Loop Operation

The closed loop control system guarantees the accuracy of the mixture composition which is essential to maximise the efficiency of the trivalent catalytic converter.
During standard operation, the signal generated by the oxygen sensors is compared with a predetermined threshold, in order to establish how the ECU will work to bring the mixture to the stoichiometric value.

NOTES

The oxygen sensors are mounted in the exhaust while the air/fuel ratio correction takes place in the intake system: this means that there is a time delay in the system's checking logic.

Open loop Operation

The system is controlled by the ECU according to pre-set values, without any corrective action resulting from the oxygen sensor signals, therefore regardless of the oxygen content in the exhaust gases.

In conditions of normal use, this mode functions when:

- 1** - The oxygen sensor is insufficiently hot (sensor temperature below approximately **300 °C**).
- 2** - The engine coolant temperature is below **50 °C** (but above **-7 °C**).

NOTES

*In analogous conditions (**-10 °C < T° < 40 °C**), the ECU for the **US M.Y. 2000** cars activates the injection of secondary air to the exhaust.*

- 3** - Accelerator in fully-open position (throttle open **72°**).
- 4** - Engine revolution speed **> 4000 ± 200 rpm**.

Open loop Mode for Checks and Diagnosis

The open loop mode can also be simulated to check the engine operation when the motor is warm, leaving the oxygen sensors disconnected.

Self-Learning Cycle

The ECU also performs the so-called "**self-learning cycle**" for the various engine conditions, which means it is capable of permanently storing the last correction made on the basis of the oxygen sensor signal.

If, for example, an unmeasured amount of air enters the intake circuit, thereby rendering the mixture too lean, the ECU will change the peculiar values accordingly, thus enriching the air/fuel mixture.

This correction is then stored and used the next time the engine runs.

By means of the self-learning cycle, it is possible to recover infiltration, losses or ageing of the components which provoke a movement of $\pm 20\%$ of the value $\lambda = 1$.

If the battery is disconnected, the ECU must be allowed to re-learn the data relating to the engine condition, leaving the car running for at least **10 minutes**.

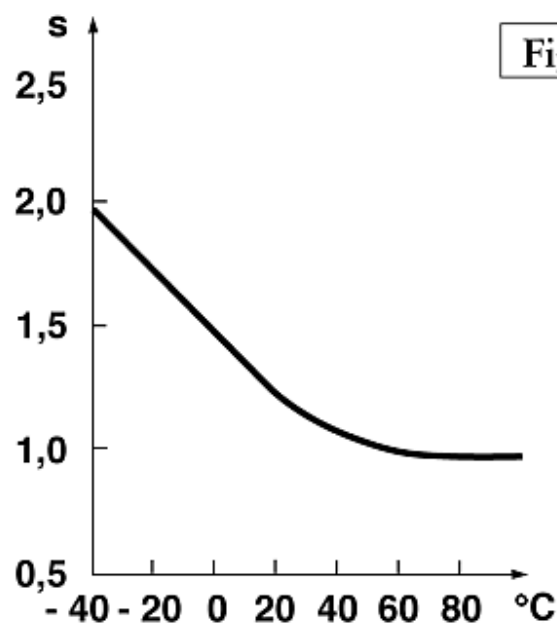
Start-up

As the engine turns, the ECU must recognise the engine timing by the sequence of signals which are transmitted by the revolution and timing sensors to synchronise the injection and ignition.

During this phase, when the engine revolution speed is higher than **30 rpm**, to make starting up the car easier, the ECU controls all the electro-injectors simultaneously and for a time that only depends on the coolant temperature.

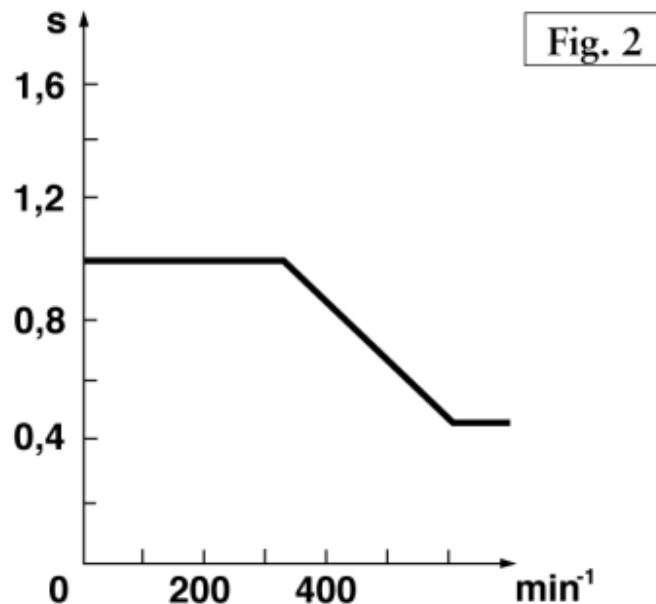
After the first injection, and once the engine timing has been recognised, the sequential and timed check of the injection starts and the electro-injectors are controlled for the injection time calculated by the ECU.

The said enrichment follows the trend indicated in the graph in **Fig. 1** and is active until the coolant temperature reaches **60°C**.



As well as this enrichment, still during the starting-up phase, the ECU also corrects the injection time according to the number of engine revolutions.

As the graph in **Fig. 2** shows, as the number of revolutions increases, the injection time decreases to prevent an excessive quantity of fuel being delivered to the cylinders.



NOTES

The start-up phase is recognised by the ECU in the presence of revolution speeds between **30** and **640 rpm**.

Post Start-Up

Once the start-up phase is complete, the ECU calculates the value and the duration of the enrichment factor for the phase after starting-up.

As the graph in **Fig. 3-4** shows, the lower the engine temperature is the higher the value and duration of this factor are.

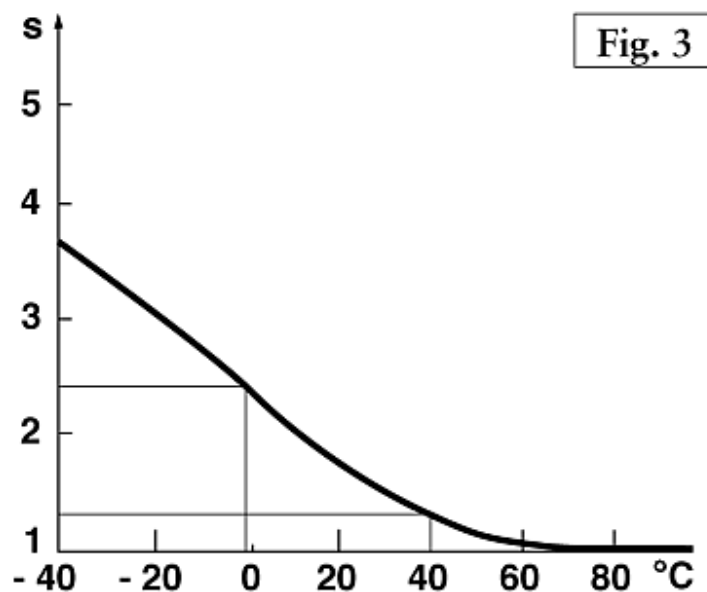
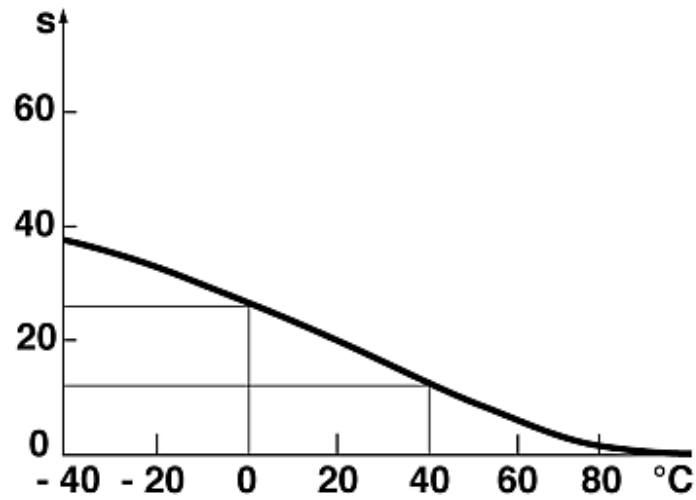


Fig. 4

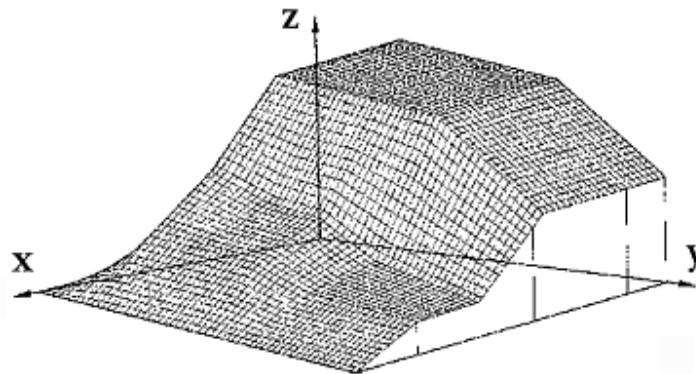


The duration of the post start-up phase is inversely proportional to the engine temperature.

Engine Warming-Up

The graph in **Fig. 5** shows the trend of the so-called warm-up enrichment factor, applied by the ECU until the engine reaches the operating temperature.

Fig. 5



Keys to Fig. 5

X - Engine revolutions

Y - Engine load

Z - Enrichment factor

This enrichment factor depends on the load and the number of engine revolutions.

When the engine is up to temperature, all the enrichment factors described are cancelled and the electro-injectors are controlled by the time t_j (described previously) only.

Full Power Enrichment

The injection time is also corrected according to the throttle opening.

When the throttle body potentiometer signals the "**full opening**", the ECU will ensure a supplementary quantity of fuel is delivered to the cylinders in order to maximise the engine performance.

This enrichment is also linked to the engine load and revolution speed.

As well as influencing the injection time, the throttle position also affects the spark advance. In fact, the Motronic ECU selects various advance mappings depending on whether the engine is idling, running at full or intermediate rpm.

The Motronic ECUs also control the revolutions limit, in order to safeguard the engine.

- The upper limit is set at **8500 rpm**.

The Motronic ECU intervenes by cutting off the electro-injectors' control.

Calculating the S.A. (Spark Advance)

Various spark advance curves are stored in the ECU for a different numbers of engine revolutions, air flow rate and throttle position. The ECU microprocessor calculates the spark advance needed according to the values assumed by these input figures.

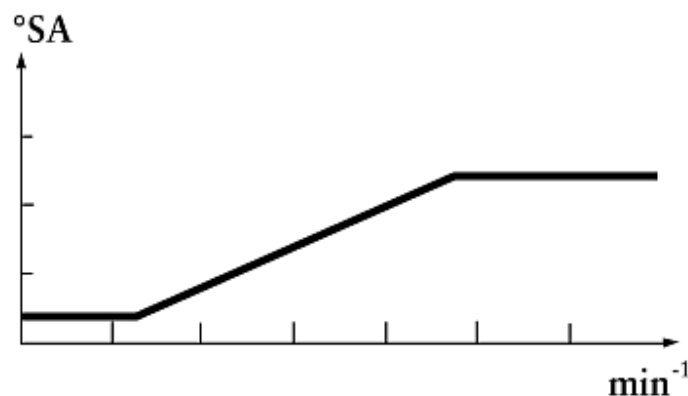
The advance curves are improved during the design and experimentation phase and once they have been entered in the memory they cannot be altered.

The ECU also corrects the spark advance according to the engine conditions of use.

Start-up Phase

During the start-up phase, which is recognised, like the injection phase, on the basis of the number of engine revolutions, the spark advance is corrected according to a graph such as the one indicated in **Fig. 6**.

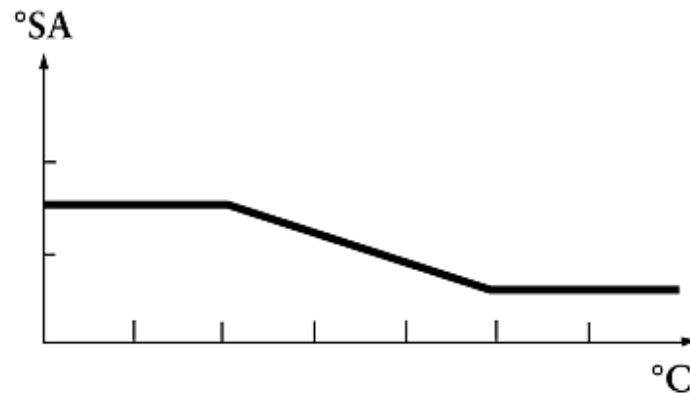
Fig. 6



°SA – Spark advance temperature in degrees

On the other hand, the graph in **Fig. 7** shows the trend of the spark advance according to the coolant temperature.

Fig. 7



°SA – Spark advance temperature in degrees

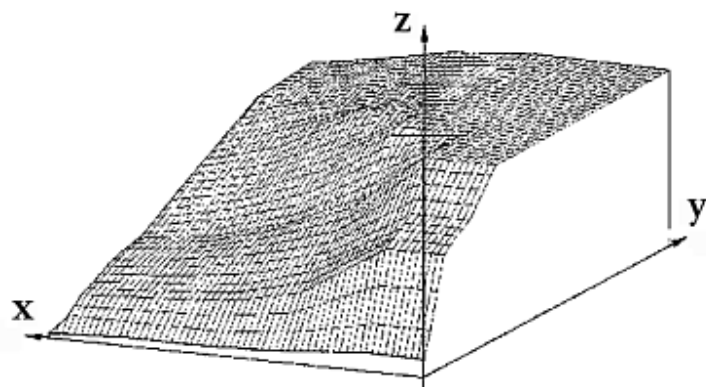
As the temperature increases, the spark advance is gradually decreased.

The ECU of the Motronic system is capable of controlling the coil charge time, generating a control signal for the power module.

To optimise the coil functioning using the maximum current value, the ECU sets the charge time according to the engine revolution speed and the battery voltage.

The graph in **Fig. 8** shows the trend of the closing angle or the running time for the power module according to the number of revolutions and the battery voltage.

Fig. 8



Keys to Fig. 8

X - Battery voltage

Y - Engine revolutions

Z - Closing angle

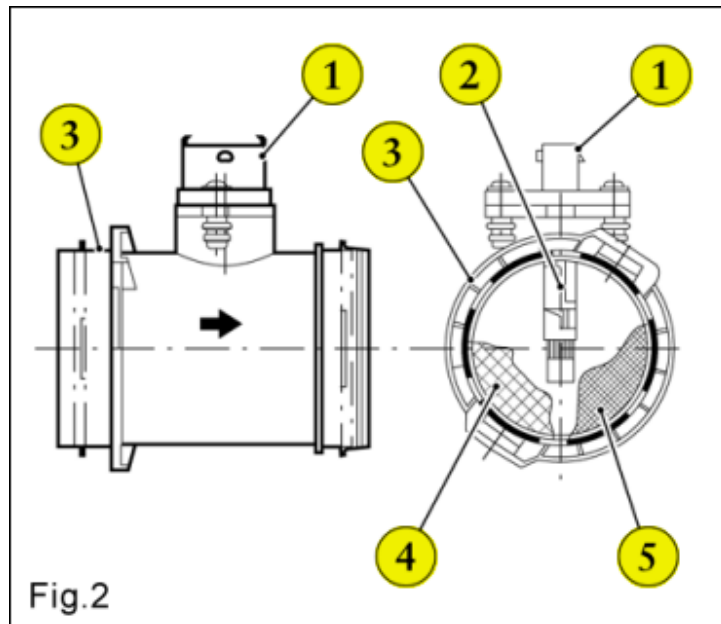
The platinum hot film sensor is a PTC (positive temperature coefficient) type thermo-resistance that is, a resistance whose value increases as the temperature increases.

As the air intake increases, the heat taken off of the sensor increases, and hence the resistance of the sensor itself decreases. Since the sensor is installed within a **"bridge"** measuring electric circuit, it causes an increase in the output voltage, which is detected by the ECU to meter the quantity of air taken in by the engine.

The air flow meter can also identify the air flow direction, and consequently the information related to the actual quantity of air taken in by the engine, if no turbulence occur.

The air temperature sensor is also integrated with the air flow meter.

On the external body of the meter there is an arrow (see **Fig. 2**) which indicates the air flow direction.



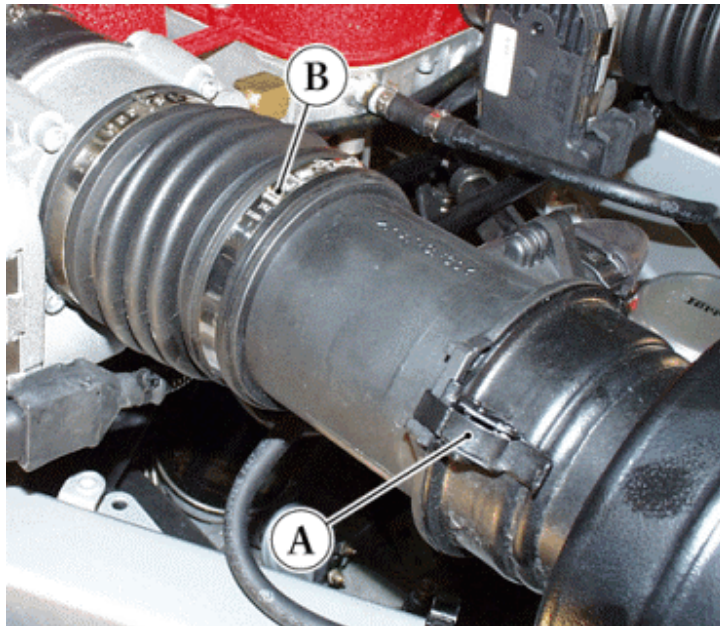
Keys to Fig. 2

- 1 - Electrical connector
- 2 - Hot-film sensor
- 3 - External body
- 4 - Griglia di protezione
- 5 - Metallic screen

If the air flow meter fails and produces wrong information or information which the E.C.U does not recognise as plausible, the **"recovery"** procedure is activated. This analyses the signal coming from the potentiometer, located on the throttle body, to determine the opening of the throttle valve and consequently the quantity of air taken in by the engine. The adjustment in this case, is much more approximate than the one obtained using the air flow meter but, it is sufficient to keep the car running efficiently and to prevent its stopping.

Replacement

- Detach the injection harness connector from the meter.
For connection to the system, see Table **S** - ELECTRICAL SYSTEM.
- Release the fasteners **(A)** on the air filter housing cover.
- Undo the clamp **(B)** on the motor-driven throttle body bellows.



- Remove the meter.
The spare air flow rate meter is supplied as a whole and must not be disassembled.

C2.04 COOLANT TEMPERATURE SENSOR



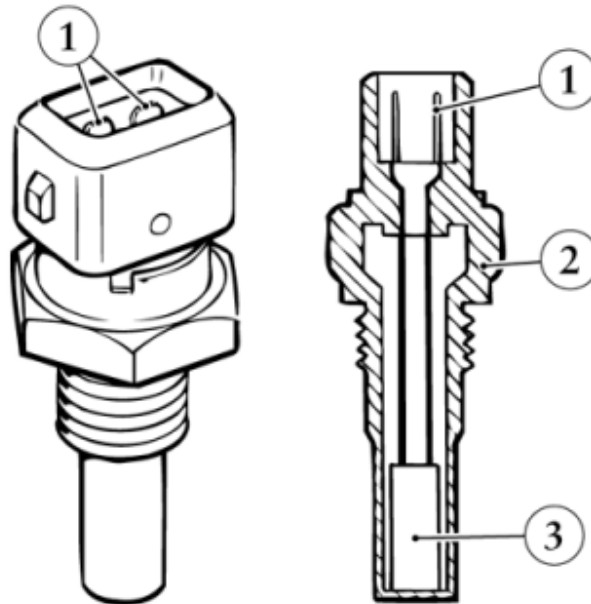
This **NTC** (Negative Temperature Coefficient) type sensor, is located on the connection duct for the head water outlet manifolds.

The sensor is mounted so that the sensitive part comes into contact with the coolant and it is fitted with gold-plated contacts.

IMPORTANT

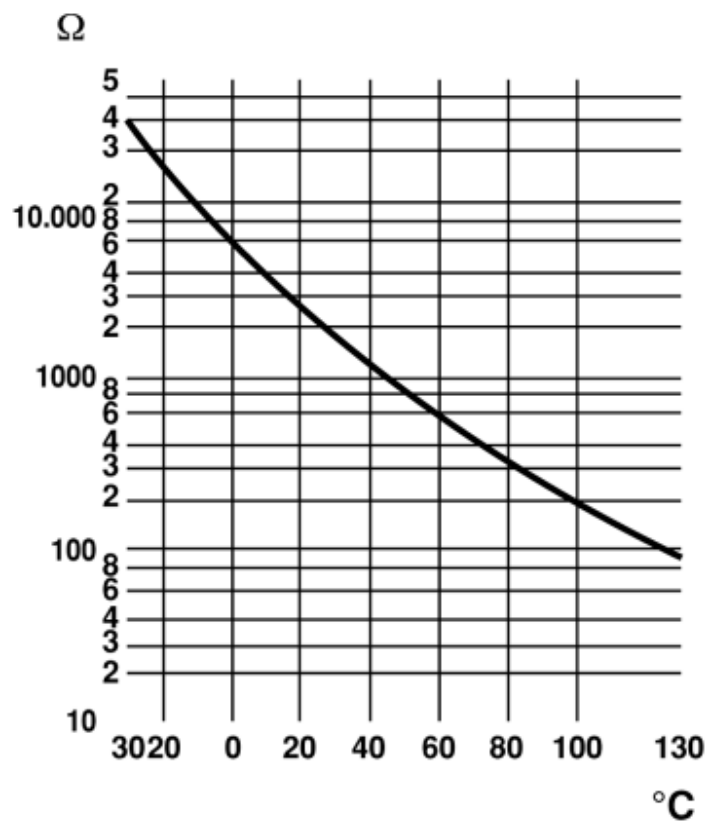
Never connect the sensor using connectors of any other type.

It is composed of a metallic body (2) with an internal negative temperature coefficient resistance (3), on which the leads (1) are terminated.



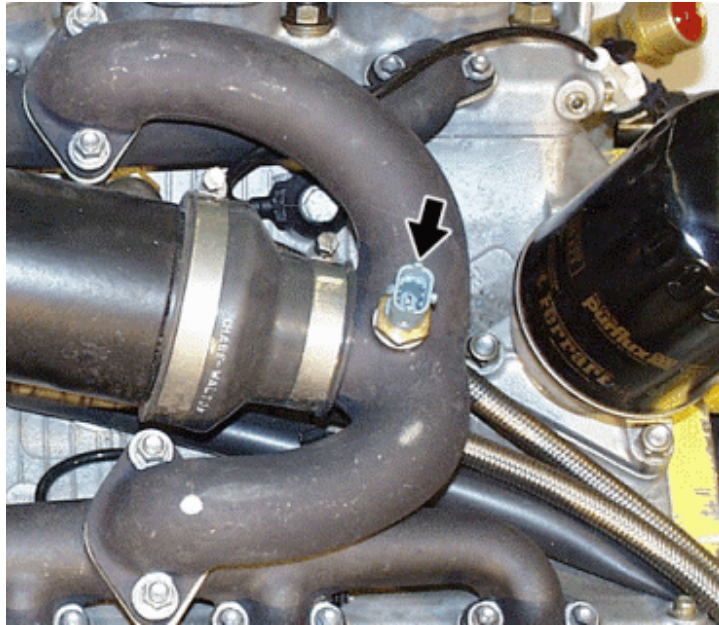
The graph shows the curve direction.

- Measurement range: from **-30/40°C** to **130°C**
- Tolerance at 20°C: **1.2°C**
- Tolerance at 100°C: **3.4°C**
- Nominal resistance at 20°C: **2.5 kΩ ± 5%**
- Nominal voltage: **≤ 5V**



Replacement

- Working from below the intake manifold, disconnect the sensor from the right-hand injection harness.
- Unscrew and remove the sensor from the duct.



- When reassembling, tighten the sensor to a **16 Nm** torque.

For connection to the system, see Table **S** - [ELECTRICAL SYSTEM](#).

C2.05 THROTTLE POTENTIOMETER



It is fitted inside the motor-driven throttle body of each bank.

The potentiometer is located on the axis of the throttle shaft and it keeps the ECU constantly informed about the opening of the throttle valve in proportion to the support shaft rotation angle.

From the principle wiring diagram for the motor-driven throttle (Fig. 1 and 2), it can be seen that there are actually two parallel potentiometers; this allows the ECU to carry out a plausibility check.

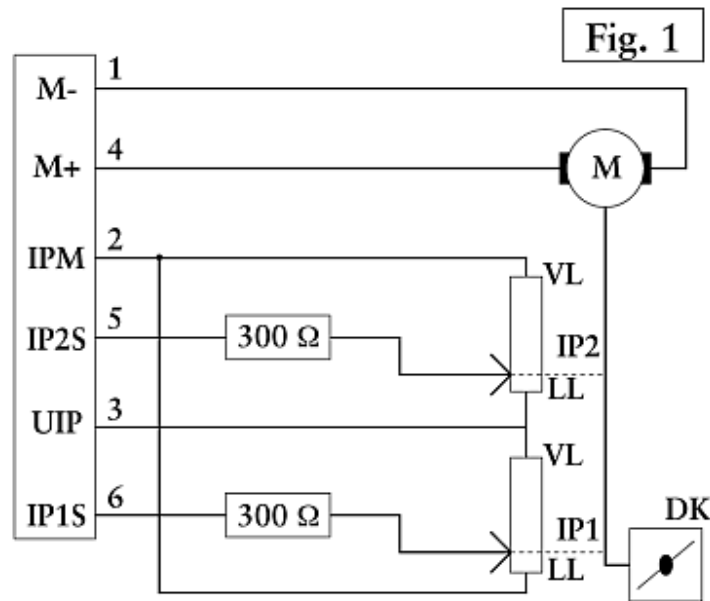
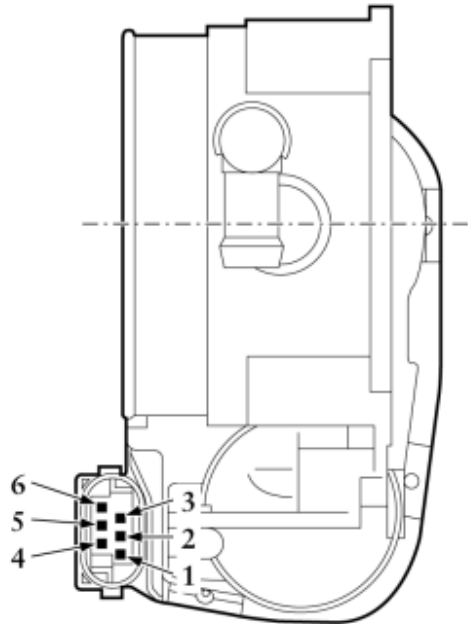


Fig. 2



The values can be checked by means of the SD-2 tester and they are opposing values (when the output voltage of one decreases, the voltage of the other one increases proportionally).

Activation threshold

- **10 minutes** of self-learning
- Idling position = **2÷3%**
- Recovery position (1500 revs max.) = **8%**
- Self-learning counter: in the new part this is positioned at **9**

Every time the engine is started, the ECU resets itself on the idle position.

The accelerator pedal must not be pressed therefore while the engine is being started.

NOTES

It is not possible to replace the potentiometer alone since it is an integral part of the motor-driven throttle body (👉 B 6.08).

C2.08 ACCELERATOR PEDAL POSITION SENSOR



This extremely robust and reliable element is fastened to the accelerator pedal mechanically ( H 2.16). This sensor serves to detect the exact position of the pedal and to transmit this information (via an electrical signal) to the ECU which is informed about the torque required by the user (see **Fig. 1**).

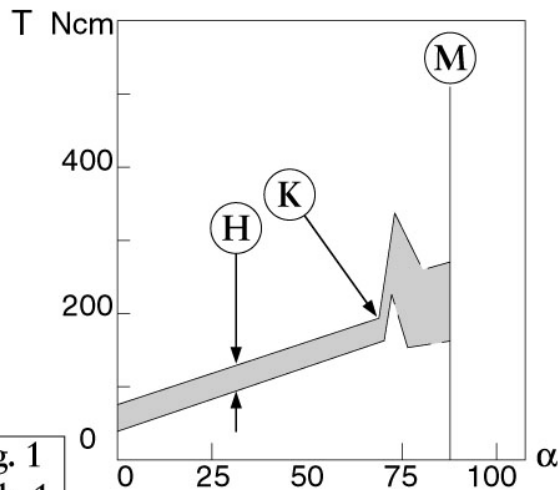


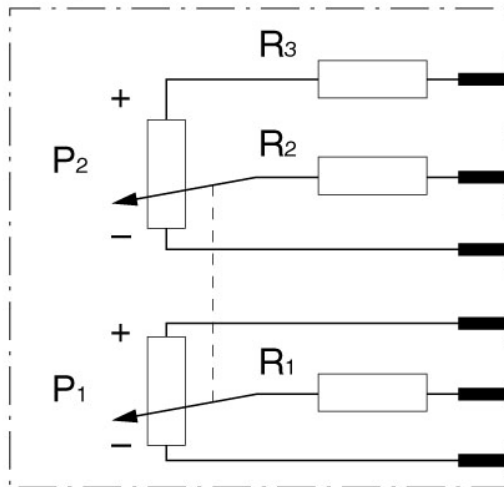
Fig. 1
Abb. 1

Keys to **Fig. 1**

- T** - Torque applied to the sensor's arm (example)
- α** - Rotation angle
- H** - Hysteresis
- K** - Kickdown
- M** - Mechanical stop

The sensor is an angular type sensor (**BOSCH PWG 3**) and it is fitted with two potentiometers (for improved operational safety), each one with its own electrical circuit to identify the signal (see **Fig. 2**).

Fig./Abb. 2



Keys to **Fig. 2**

P1-P2 - Potentiometers

If during this redundancy check, the ECU identifies a malfunction, it signals the error and sets the system into a recovery state: maximum operation speed of **1500 revsmin**.

Reference values

Potentiometer (P1)

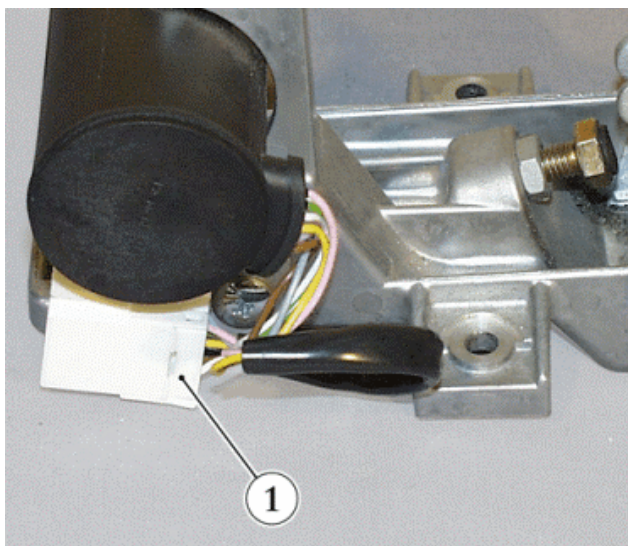
- Resting position = **0,65÷0,85 V**
- Max position. = **3,7÷3,9 V**

Potentiometer (P2)

- Resting position = **0,33÷0,42 V**
- Max position. = **1,85÷1,95 V**

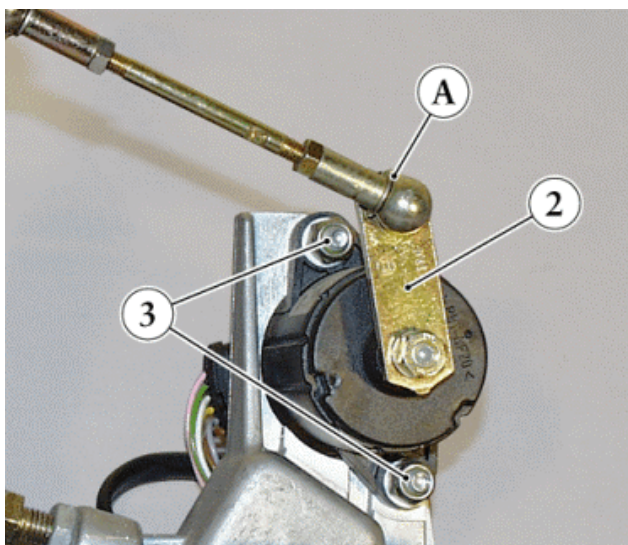
Disassembly

- Remove the pedal unit ( [H 2.16](#)).
- Detach the sensor connector (1) from the fastening bracket on the pedal support.



For connection to the system, see Table **D** - ELECTRICAL SYSTEM.

- Detach the ball joint from the control lever (2), sliding off the clip (A).
- Unscrew the nuts (3) and remove the sensor from the support.

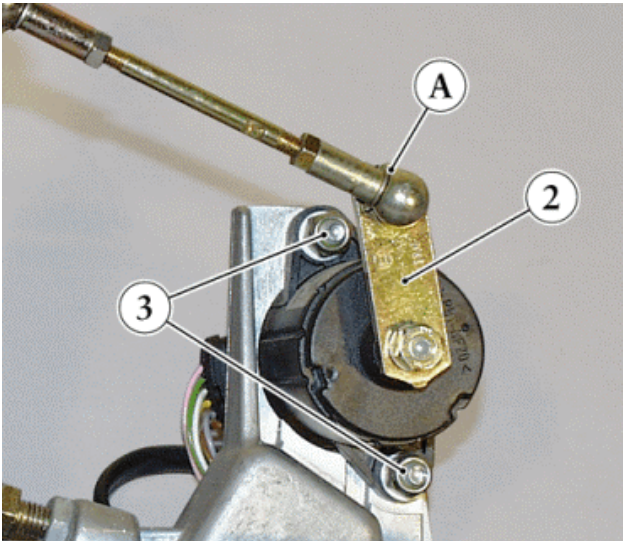


NOTES

To adjust the pedal stroke limit, ( [H 2.16](#)).

Re-Assembly Notes

- Lubricate the spherical head on the control lever (2).
- Tighten the nuts (3) on the support to a torque of **8,7 Nm**.



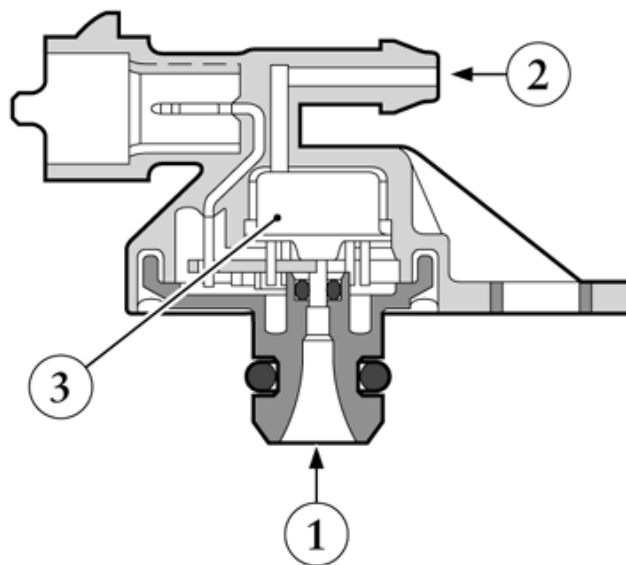
C2.09 TANK PRESSURE SENSOR AND VAPOUR INTERCEPTION VALVE (Euro 3 - US version)



The system carries out the tightness diagnosis for the fuel tanks and the anti-evaporation system using these components.

Pressure sensor (A)

This sensor, mounted in the fuel tank, is a differential sensor which detects the difference between the pressure in the two inlets used.



The inlet (1) is located inside the fuel tank, while the inlet (2) draws on the room pressure: the two inlets converge in a single central chamber, where there is a piezo-resistive element (3) which generates an electric signal that is proportional to the pressure difference at its two ends.

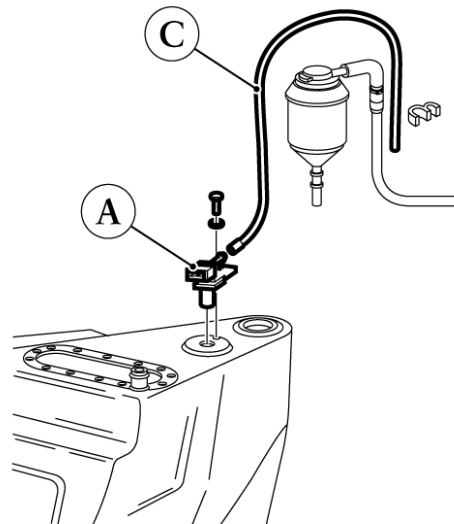
The tightness diagnosis for the anti-evaporation system is carried out by the ECU autonomously, by activating the tank-lock valve and the fuel pump accordingly, in order to create a vacuum inside the tank. By observing the time trend of the signal transmitted by the sensor, the ECU can identify any leakage of up to **1mm** column of water.

NOTES FOR REPLACING THE SENSOR

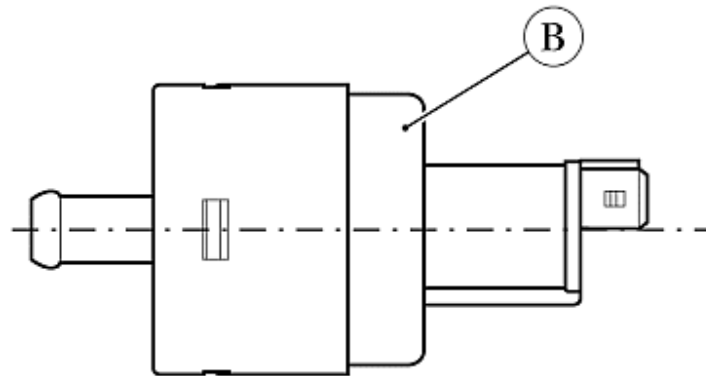
- Fix the sensor to the tank, tightening the fastening screws to a torque of **6 Nm**.
- It is very important that no impurities enter via the inlet (2).

IMPORTANT

The pipe (C) used to detect the external pressure must be located in a position protected from possible impurities or water infiltrations.

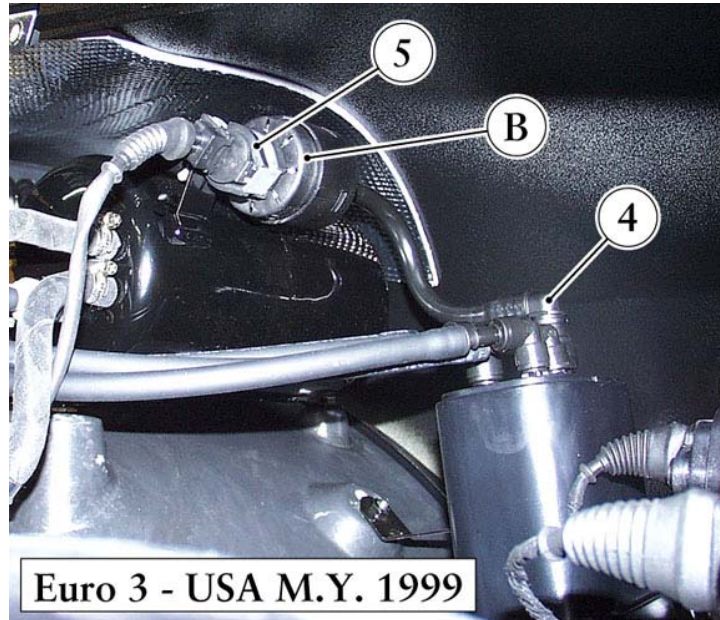


Vapour interception valve (B)

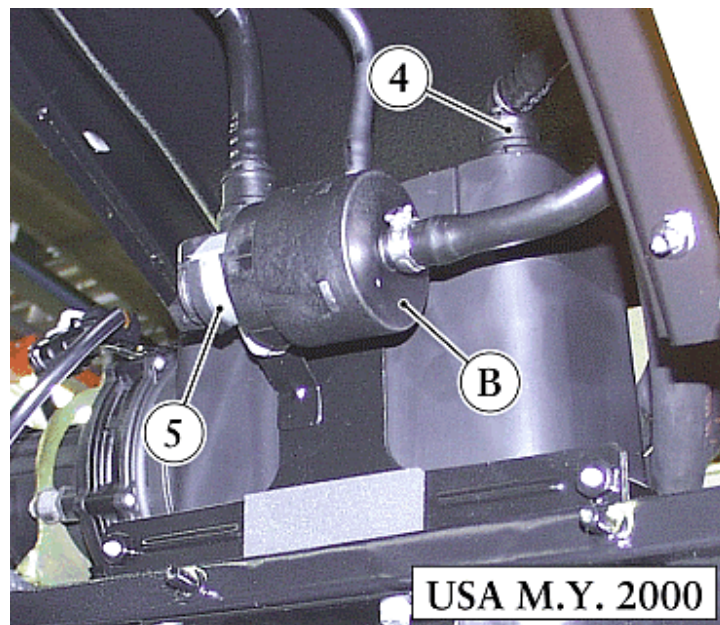


This is connected to the active carbon filter through a flexible tube.

In the **Euro 3 - US M.Y. 1999** version it is fastened to the vacuum tank, housed on the right-hand side of the engine compartment.



In the **US M.Y. 2000** version it is fastened to the active carbon filter's support bracket, fitted on the right-hand side of the engine compartment.



In normal conditions the valve is open and allows the intake of external air into the filter.

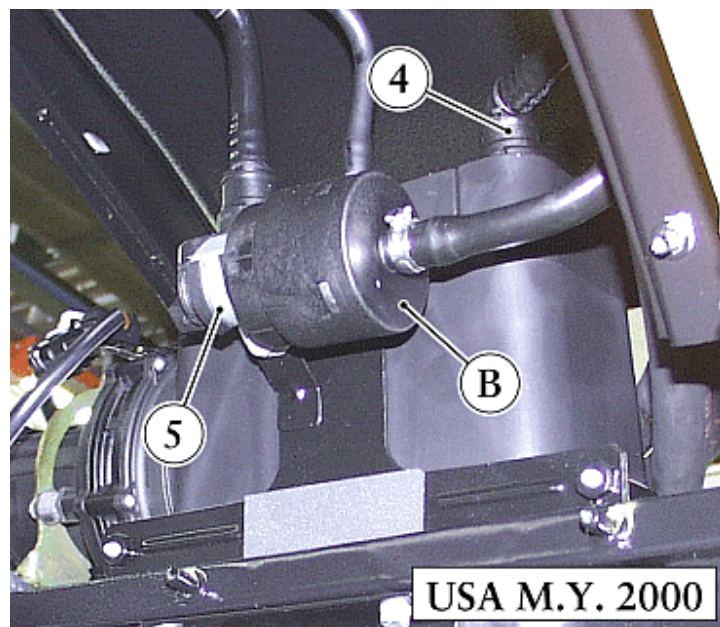
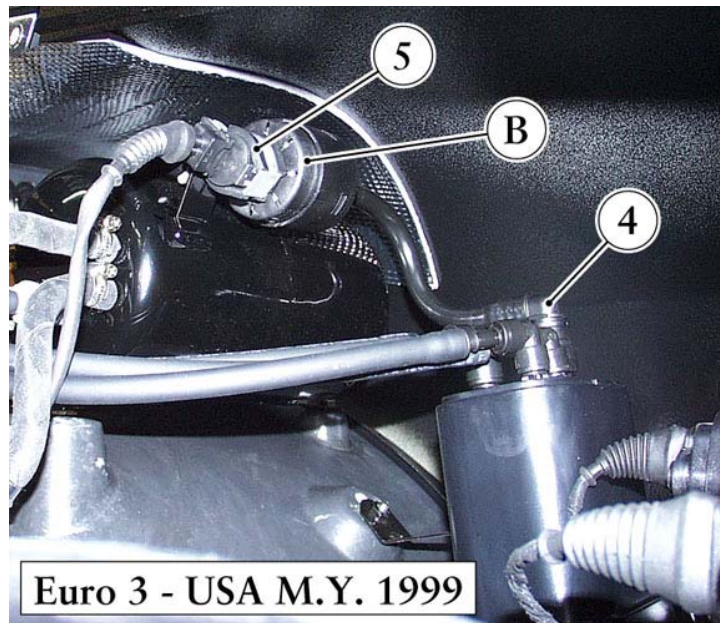
With the car at a standstill, with the engine running at a minimum, the ECU controls the valve to effect a diagnosis on the system's tightness, at prescribed intervals.

NOTES FOR REPLACEMENT

- Remove the right-hand side protection of the engine compartment ( [M 2.13](#)), for the **Euro 3 - US M.Y.**

1999 version, or the lower edge of the rear left-hand side wheelhouse ( [M 2.05](#)), for the **US M.Y. 2000** version.

- Detach the connection from the system.
- For connection to the system, see Tables **L** and **T** - ELECTRICAL SYSTEM.
- Detach the Victaulic coupling (**4**) from the carbon filter.
 - Release the valve from the support bracket (**5**).
 - Remove the valve together with the pipe.

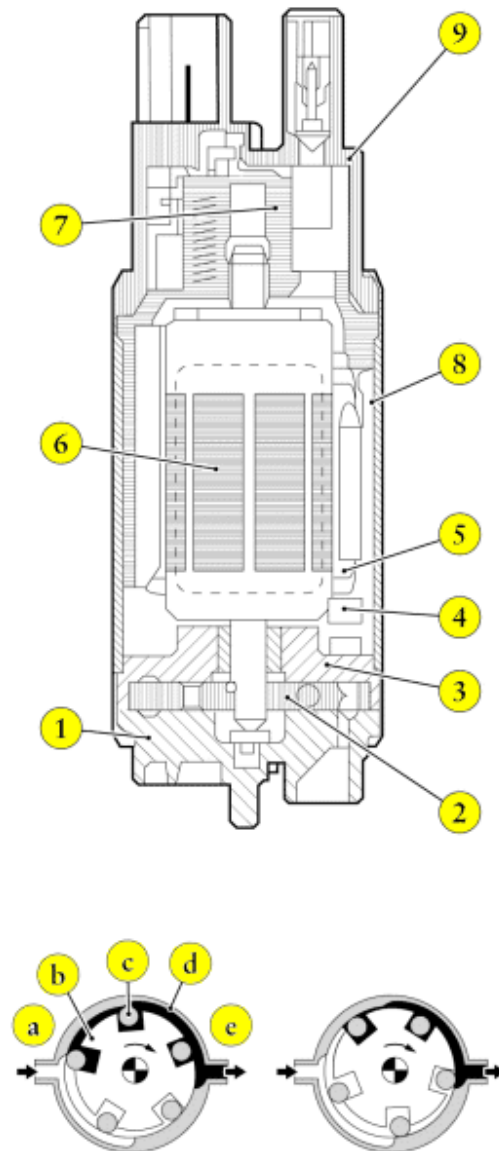


C3.01 FUEL PUMP



The pump (**BOSCH EKP 13.5**) is a suction pump with rollers, and it is activated by a permanent magnet electric motor (see Fig. 1).

Fig. 1



Keys to Fig. 1

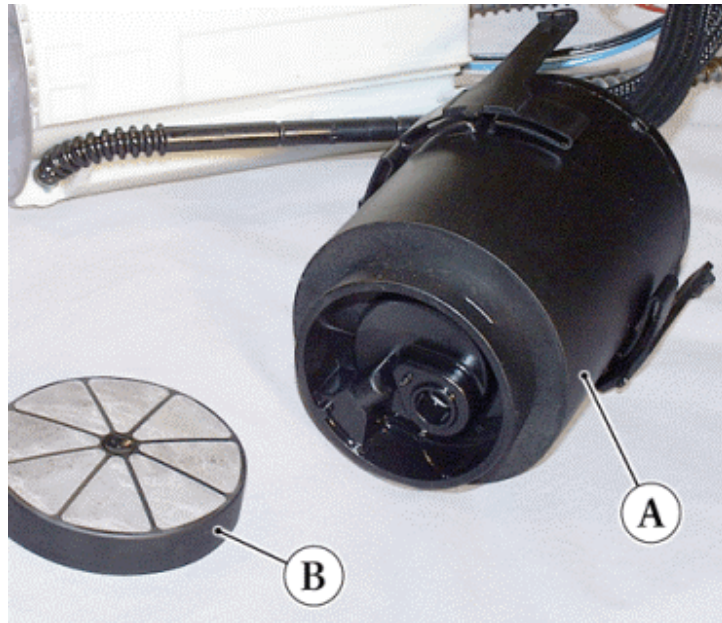
- 1 - Inlet plate
- 2 - Impeller
- 3 - Outlet plate
- 4 - Spring

- 5 - Magnets
- 6 - Engine body
- 7 - Bearing support
- 8 - External support

- 9 - Terminal cover
- a - Intake side
- b - Rotating disk
- c - Roller

- d - Roller track
- e - Pressurised outlet side

There is one located in each tank, inside a special casing (A) which also contains the fuel filter, at the pump inlet. On the lower end there is a meshed suction screen (B).



The pump control motor is activated when the speed of the engine/motor exceeds **40 revs/min** and it remains constantly active when the engine/motor is started.

If the injection is activated when the engine is not running, a safety circuit locks the fuel supply pump.

The pump can function with low power supply voltages and at low temperatures, which makes it particularly efficient for starting up when the engine is cool.

The pump has a pressure relief valve which short-circuits the delivery to the intake chamber when the pressure exceeds **8 bar**, as in the case of clogging. Furthermore, it is fitted with a check valve which opens at a pressure of **1,5 bar** and closes with the pump stopped, to keep the operating pressure at approximately **3,6 bar**.

IMPORTANT

The pump is connected to the tank flange cover by means of pipes and electrical cables which must never be disconnected.

To replace the pump (👉 B 6.03).

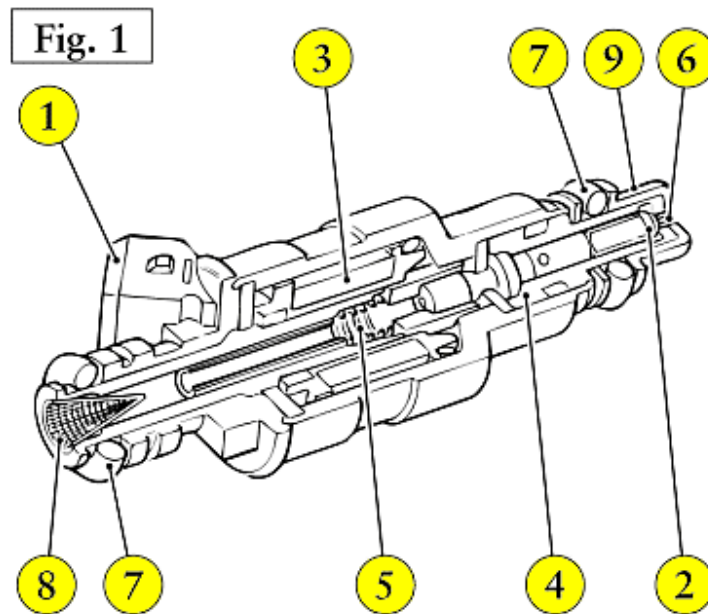
C3.02 ELECTRO-INJECTORS



The electro-injectors (**BOSCH EV 6-E**) are controlled directly by the ECU and they can be fully open or fully closed.

The command sent by the ECU is sequential and timed, that is the electro-injectors are activated according to the engine combustion order (sequential). The moment opening begins and its duration depend on the timing of the each cylinder (timed).

The electro-injector is composed of a body (see **Fig. 1**) and a needle nozzle with a magnetic inductor placed over it.



Keys to **Fig. 1**

- 1 - Injector body
- 2 - Needle nozzle
- 3 - Magnetic winding
- 4 - Needle guide
- 5 - Helical spring
- 6 - Nozzle pin
- 7 - O rings
- 8 - Meshed filter
- 9 - Heat resistant bushing

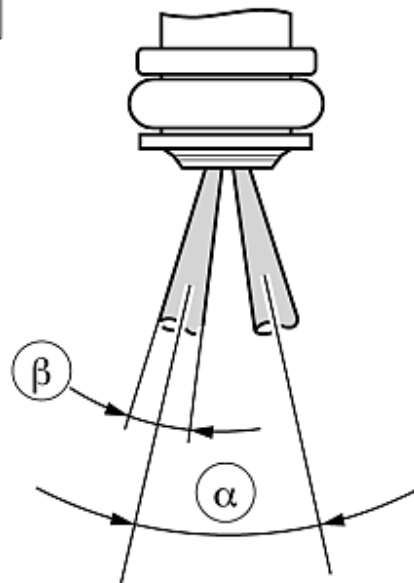
The injector body houses a magnetic winding and the guide for the nozzle needle.

When the magnetic winding is disconnected from the power supply, the helical spring presses the nozzle needle onto the seal seat next to the injector exhaust.

As soon as the helical winding has been triggered, the nozzle needle moves away from its seating by approximately **0,1 mm**, allowing the fuel to be injected through a gauged hole.

On the front end of the needle there is sharpened nozzle pin which atomises the fuel finely and generates a double spray (see **Fig. 2**) which makes the distribution of the fuel in the combustion chamber more uniform

Fig. 2



Keys to Fig. 2

α - Spraying angle (50% of the fuel injected is included in this angle)

β - Spraying angle (70 of the fuel injected is included in this angle)

On the external body there are two O-rings which seal the rail and the intake manifold, and a meshed filter to retain the fuel impurities.

The end of the electro-injector is also fitted with a teflon thermal protective bushing in order to prevent the fuel evaporation and the consequent crystallisation of the dry residue on the needle. That is why the said sleeve must never be removed when the electro-injector is being assembled.

- The electro-injector triggering and drop times range between **1** and **1,5 ms**.

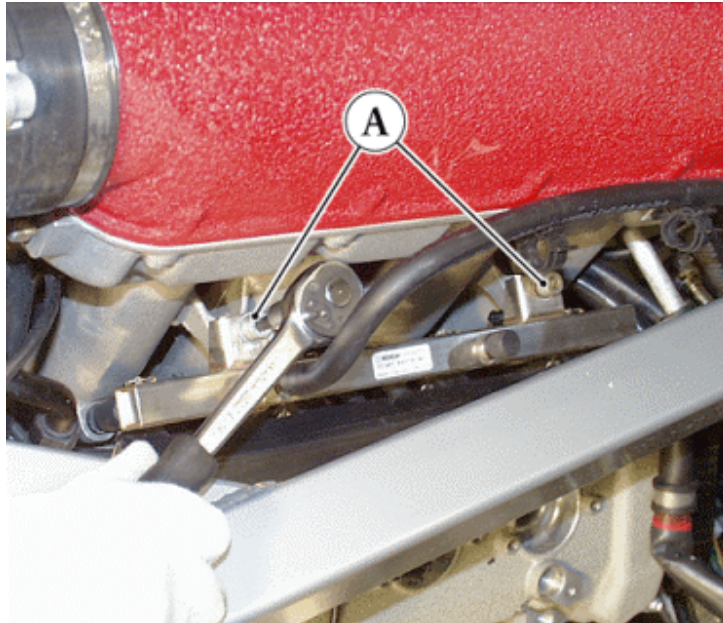
Replacement



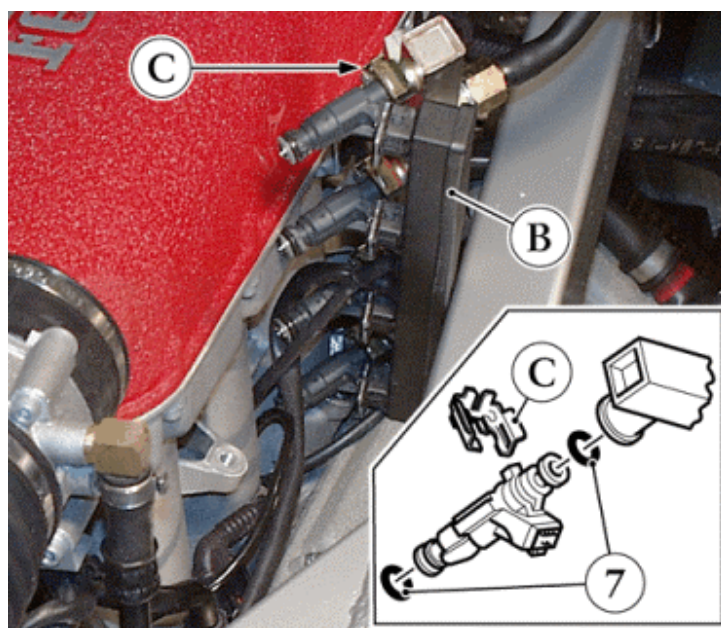
CAUTION

If it is necessary to disconnect any of the fuel supply system's pipelines, remember that they may be pressurised, and so there is a risk that the worker may be sprayed with fuel. Take special care then when carrying out this operation and keep any naked flames clear of the work area.

- Remove the injector rail fastening screws **(A)**.

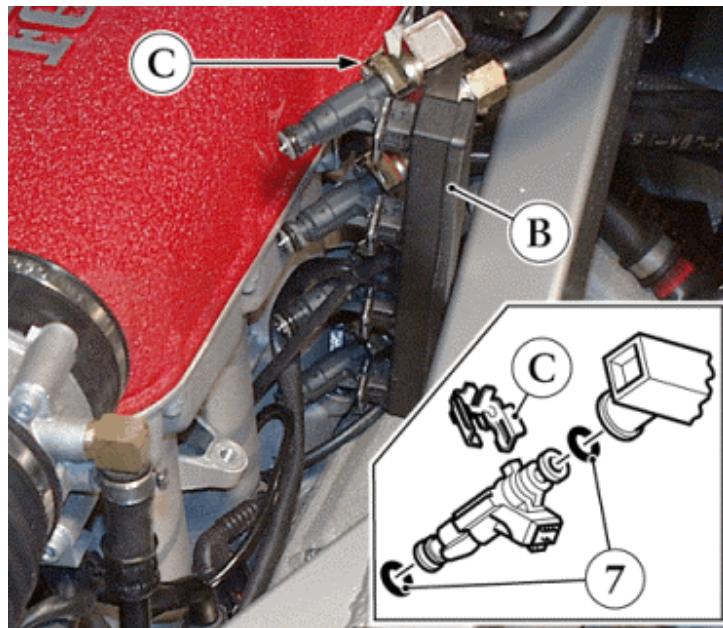


- Remove the rail, taking care not to let the injector ends hit any parts of the vehicle.
- Plug the injector seat on the manifold to prevent foreign bodies entering the combustion chamber.
- Remove the injector from the connector-holder support **(B)** and remove it from the rail, sliding off the clamp **(C)**.

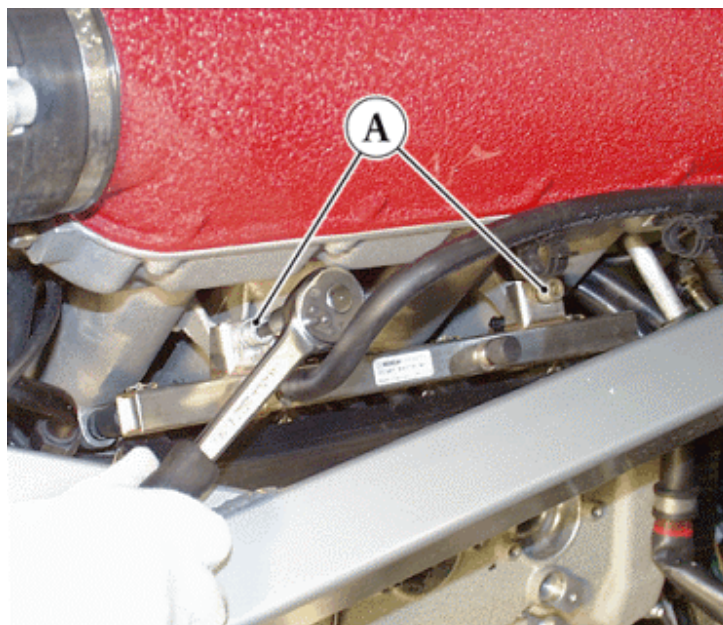


Reassembly

- If the original injectors are to be remounted, make sure that the O rings (**7**) are in a good condition. Lubricate them, using products that do not contain silicon to avoid damaging the oxygen sensors.
- Install the injector on the rail, holding it in place with the special clamp (**C**) and mount the connector-holder support (**B**).



- Insert the unit just assembled in the manifold seatings and tighten the screws (**A**) to a **25 Nm** torque.



IMPORTANT

After replacing the injectors it is necessary to carry out a self-learning cycle (👉 C 6.05).

C3.06 PNEUMATIC ACTUATION SYSTEM SOLENOID VALVES



These are attached to the support bracket of the MOTRONIC ECU, over the right-hand fuel tank.

The solenoid valve **(1)** controls the pneumatic capsule of the intake manifold cover, determining the opening of the flow rate balance throttle valve.

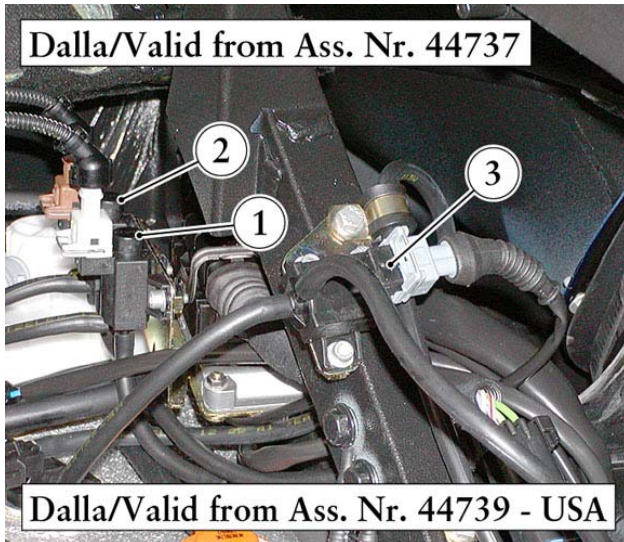
The solenoid valve **(2)** controls the actuator located under the intake manifold, determining the opening of the throttles on the fuel supply lines.



The solenoid valve **(3)**, available in the **US** version, controls the pneumatic valves which enable the injection of air into the exhaust manifolds.



Vehicles **FROM Ass. No. 44737 (NOT for USA)** and **FROM Ass. No. 44739 (Valid for USA)**, are equipped with new solenoid valves featuring double-screw fastening supports. This modification also concerns the support plate, which must be replaced if the new solenoid valves are fitted. With this new modification, the solenoid valve **(3)**, available only starting from the **USA M.Y. 2000** version, is no longer positioned next to the other valves, but it is secured on the chassis RH pillar, by means of a special support plate.



The actuators are vacuum-operated and are part of the pneumatic actuating system ( **B 7.04**). The solenoid valves are controlled by the ECU by means of an **ON/OFF** control, in accordance with the engine conditions of use. The diagnosis system can detect a short circuit (sc) or open circuit (oc) in the solenoid valve.

Activation thresholds

(1) COMPENSATION

Active low → throttle compensation valve closed
 From **1000** to **2680 rpm** → CLOSED
 From **2680** to **3960 rpm** loaded **>56%** → OPEN
 From **3960** to **5080 rpm** loaded **>60%** → CLOSED
 From **5080** to **6240 rpm** loaded **>60%** → OPEN
 From **6240** to **8600 rpm** loaded **>60%** → CLOSED

(2) MODULAR INTAKE

Active low → short manifolds
 Da **1000** a **5520 rpm** → LONG MANIFOLDS
 Da **5520** a **8600 rpm** carico **>46%** → SHORT MANIFOLDS

(2) MODULAR INTAKE

- **Open:** from **5500 rpm** to **8500 rpm**

(3) SECONDARY AIR INJECTION

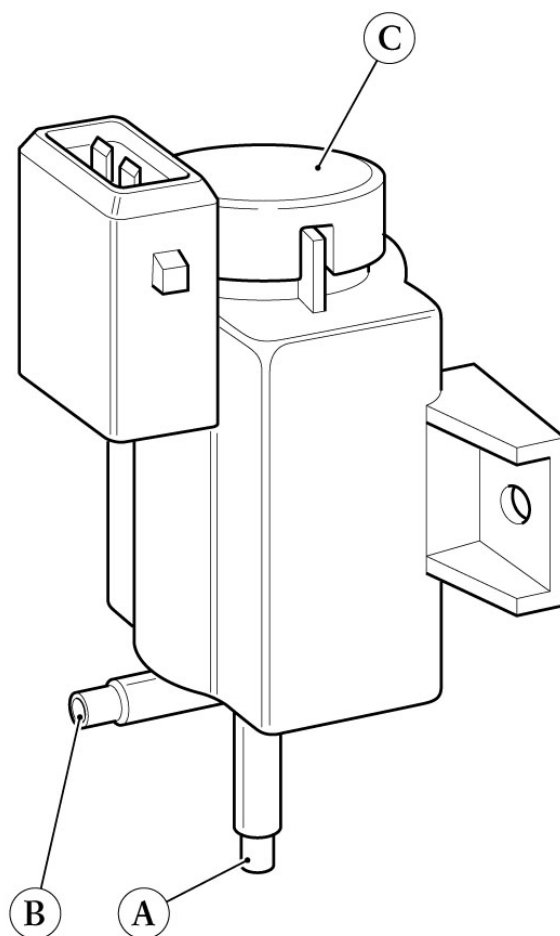
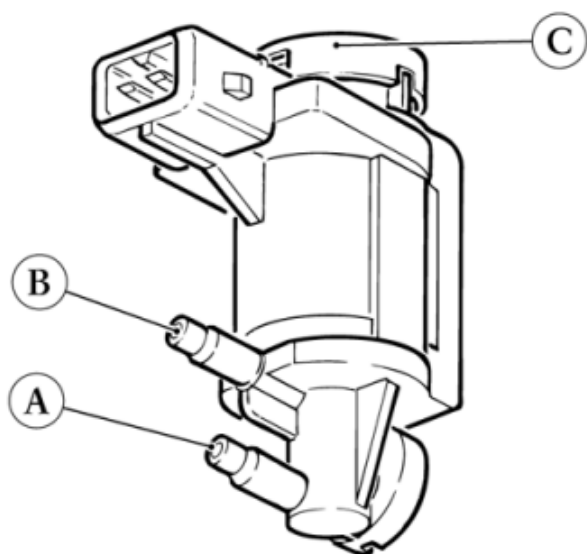
The secondary air pump and solenoid valve are controlled after the engine is running and when the coolant fluid is **-10° < T°mot < 40°**. This function is active for about **80** seconds, it is then disabled for about **60** seconds and is active once again for a further **10** seconds. The tightness of the pneumatic valves is tested during the last **10** seconds. For the entire length of the ON-OFF-ON function, the Lambda function is disabled (oxygen sensor **OFF**).

Each solenoid valve is fitted with:

A - a vacuum plug (connection to the storage tank);

B - a union for connection to actuators

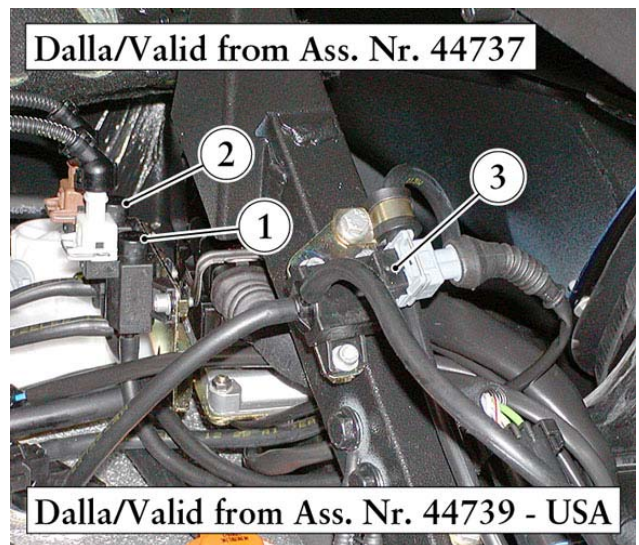
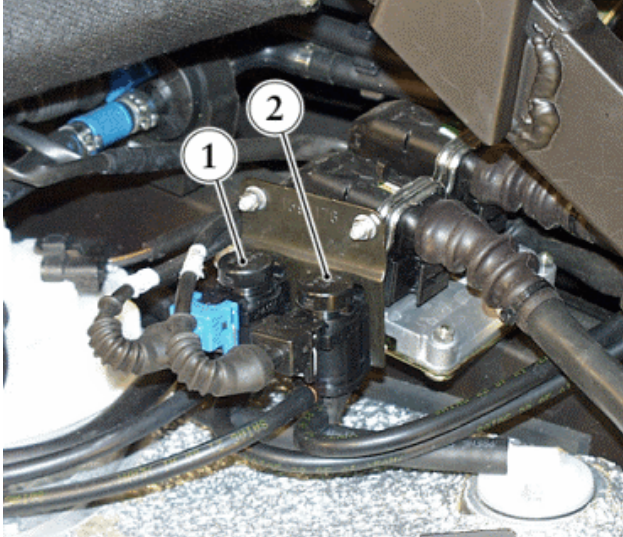
C - an atmospheric pressure plug.



Replacement

- Detach the connector from the injection wiring harness and the connecting pipes.
- Slide the solenoid valve off the support bracket.
- When re-fitting the valve, the WHITE connector (BLUE in the first cars) must be linked to the solenoid valve (1), which controls the pneumatic capsule, and the BROWN connector (BLACK in the first cars), to the other solenoid valve (2).

In the **US** version, the GREY connector must be connected to the solenoid valve (3) which controls the secondary air valve.



For connection to the system, see Table **S** - ELECTRICAL SYSTEM.

IMPORTANT

After replacing the solenoid valves, it is necessary to carry out a self-learning cycle ( [C 6.05](#))

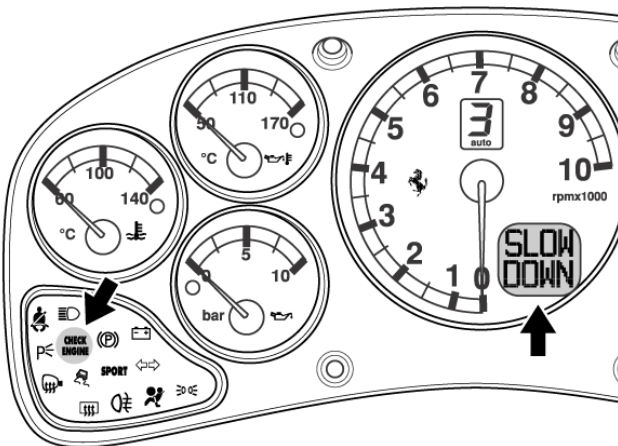
C3.07 "CHECK ENGINE" OR "ENGINE CONTROL SYSTEM FAULTS" AND "SLOW-DOWN" WARNING LIGHTS



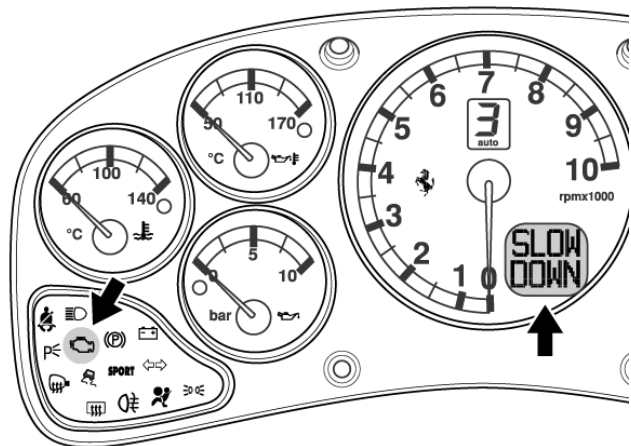
"Check Engine" or "Engine Control System Faults" warning light and Ignition Strategy

This warning light (**amber** colour) is located on the instrument panel ( **H 1.02**) and indicates the errors found on all of the sensors/actuators and that can be identified by means of the **SD-2** tester.

Euro 2 - USA M.Y. 1999



Euro 3 - USA M.Y. 2000



The engine ECU has a self testing system which recognises all the errors relating to the engine management sensors and actuators.

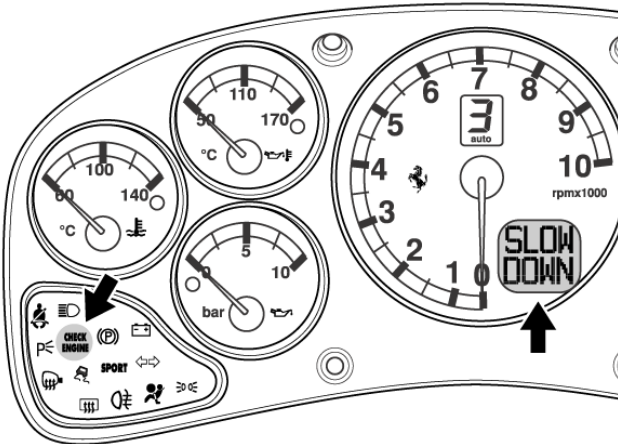
When a malfunction is detected, the ECU stores the error and the engine data related to the moment at which the error was identified.

The warning light starts to flash as soon as any misfiring errors are recognised or remains permanently lit to indicate a malfunction in the emission control system and in the injection/ignition system.

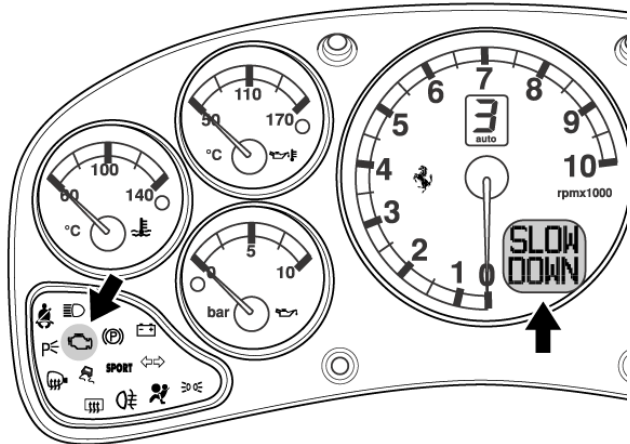
"Slow-Down" Warning Light

The thermocouple signal is linearised by an ECU and transmitted to the ECU which turns on the **SLOW-DOWN** ideogram (colour **red**), on the instrument panel multifunction display ([H 1.03](#)), and ensures the catalytic converter is protected in the following way.

Euro 2 - USA M.Y. 1999



Euro 3 - USA M.Y. 2000



If the light is flashing, the temperature of the catalytic converter is too high, i.e. it has reached a level of 960 ± 15 °C.

In this case, slow down immediately and act as necessary to remove the cause of the malfunction.

If the light is lit constantly, the temperature of the catalytic converter has reached a level of 970 ± 15 °C and it could rise still further, greatly increasing the risk of damage.

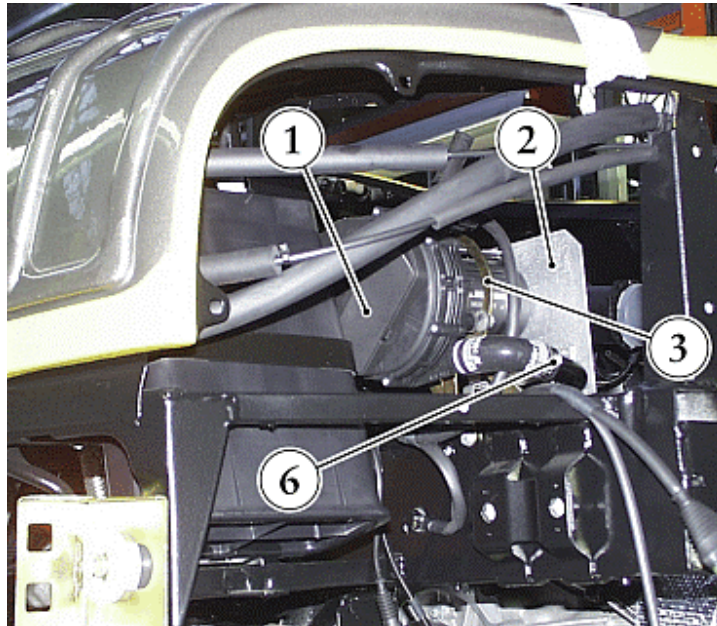
In this case, stop the car immediately and proceed as necessary to remove the cause of the malfunction.

If the temperature reaches 980 ± 15 °C for more than half a second, the ECU will cut off the fuel supply to the injectors.

C3.09 SECONDARY AIR PUMP (US M.Y. 2000 version)



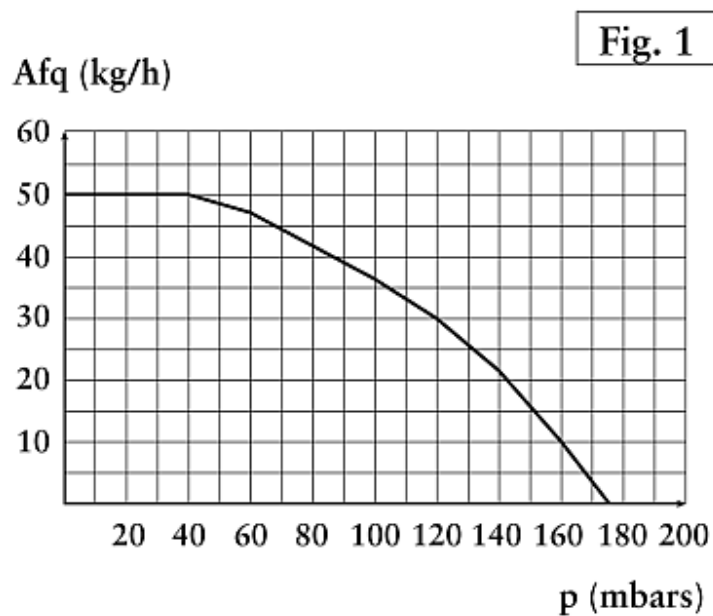
The air pump (1) is positioned on the left-hand side of the engine compartment, under the rear mud-guard. It is protected by a shield (2) from the heat produced by the exhaust silencer fastened to the pump bracket support (3).



The air drawn-in by a filter incorporated in the pump, is sent, through a series of rigid tubing and pipe couplings, to the secondary air valves ( [B 7.05](#)).

In certain engine functioning conditions, the command for the secondary air pump and the solenoid valve is activated by the Motoronic in order to lower the level of harmful emissions into the environment ( [C 3.06](#)).

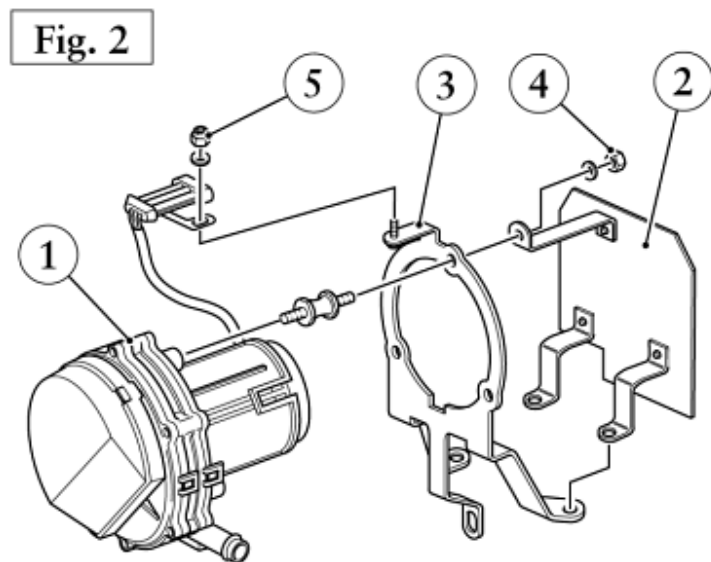
The graph for Fig. 1 shows the characteristic curve of the air flow produced by the pump depending on the overpressure.



Keys for **Fig. 1**

Afq – Quantity of air flow

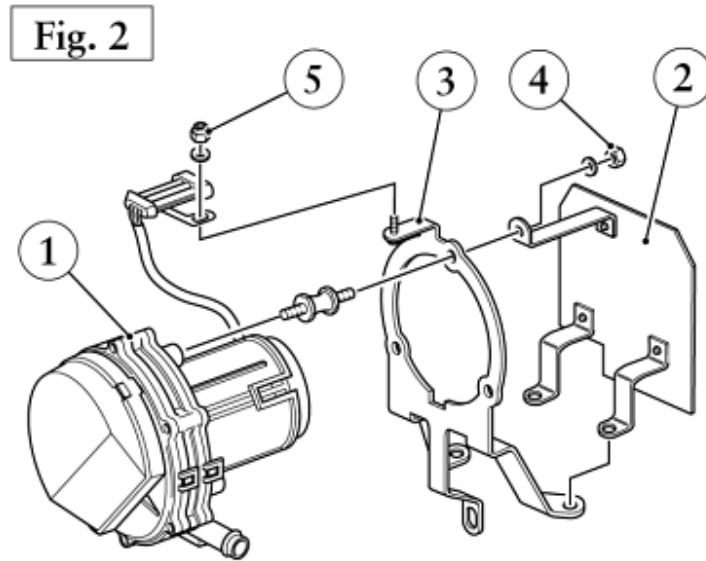
p - Pressure



Replacement

- To access the air pump it is necessary to remove the lower edge of the rear, left-hand side wheelhouse ([M 2.05](#)) as well as the active carbon filter ([A 3.10](#)).
- Unscrew the three nuts (**4**, Fig. 2) fastening the air pump's flexible inserts (**1**) to the support bracket (**3**) and to the anti-heat shield (**2**).
- Unscrew the nut (**5**) which fastens the pump connector on the support bracket and remove the connection from the engine compartment system.

For connection to the system, see Table L - ELECTRICAL SYSTEM.



- Loosen the clamp (**6**) on the tubing which connects to the pneumatic valves and separate it from the pump.
- Remove the air pump by detaching it from under the wheelhouse.

C3.10 ANTI-EVAPORATION SOLENOID VALVE



The anti-evaporation or canister purge solenoid valves control the flow of vapours which arrive at the intake manifold ( B 6.02).

They are controlled by the MOTRONIC ECU by means of a duty-cycle piloting and are usually closed. In this condition the solenoid valve also effects an anti-return function.

- | | |
|-----------------------------------|-----------------------------------|
| - Frequency control: | 30 Hz |
| - Absorption current (at 13,5 V): | 0.5 A |
| - Resistance at 20°C: | 26 Ω |
| - Working voltage: | 9÷16 V |
| - Operating temperature: | from -30°C to 120°C |

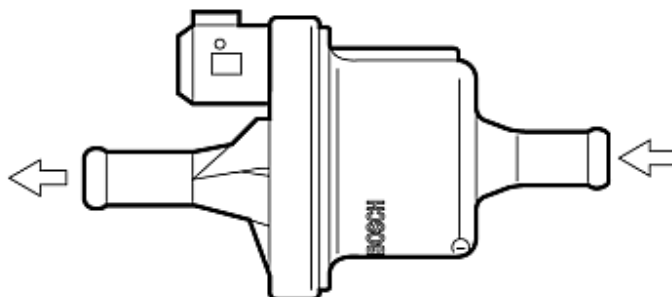
Notes for replacing

- Remove the right-hand side protection from the engine compartment ( M 2.13)
- Detach the system's connection.
- Remove the solenoid valve **(1)** with flexible terminal strip from the support bracket.
- Loosen the clamps on the connection pipes and remove them from the solenoid valve.



- When reassembling the solenoid valve, position it as in Fig. 1.

Fig. 1

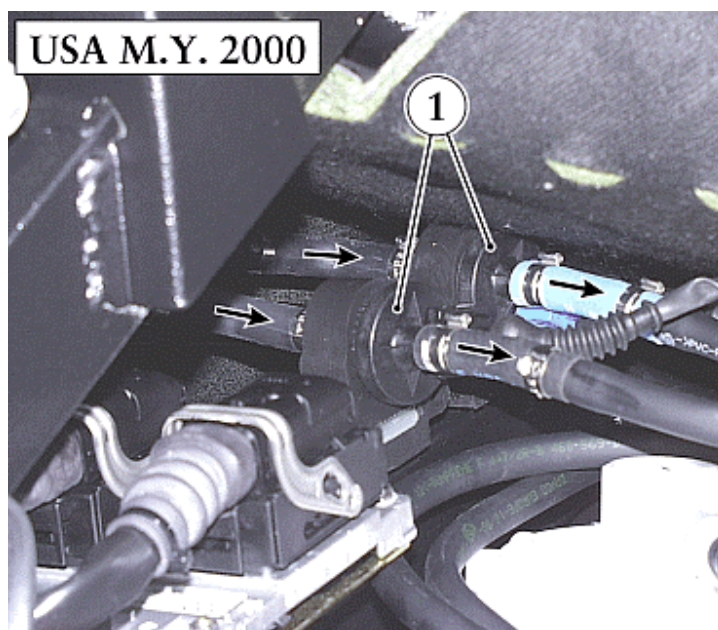


For connection to the system, see Tables **L** and **T** - ELECTRICAL SYSTEM.

Nota per versione USA M.Y. 2000

In this car, the two solenoid valves (**1**) are positioned on the left-hand side of the engine compartment, under the rear mud-guard.

For connection to the system, see Table **T** - ELECTRICAL SYSTEM.



H2.16 ACCELERATOR CONTROL



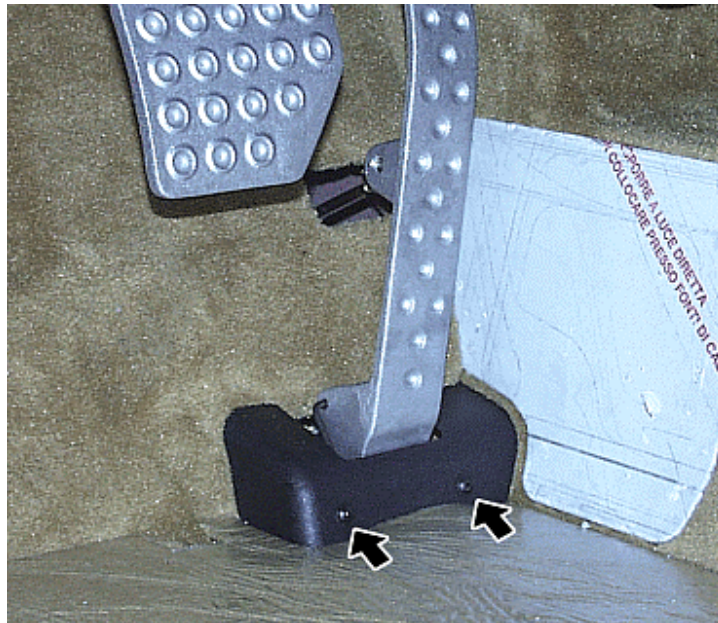
The accelerator control pedal is pivoted on a frame fitted in the floor panel. This frame also contains the sensor that supplies the ignition/injection system "ECU" with the data relating to the pedal's position.

NOTES

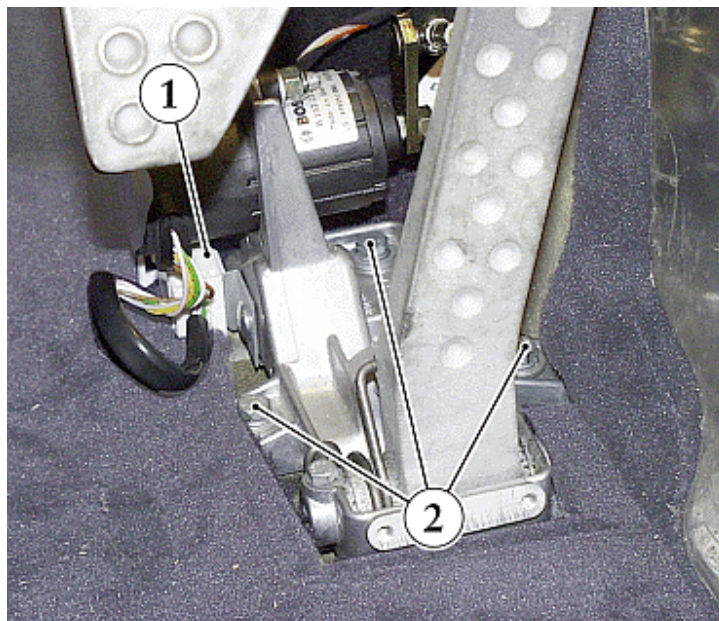
For information on the functioning and replacement of the accelerator pedal sensor, ( [C 2.08](#)).

Removing the entire control

- Remove the pedal's protection and the covering of the pedal board.

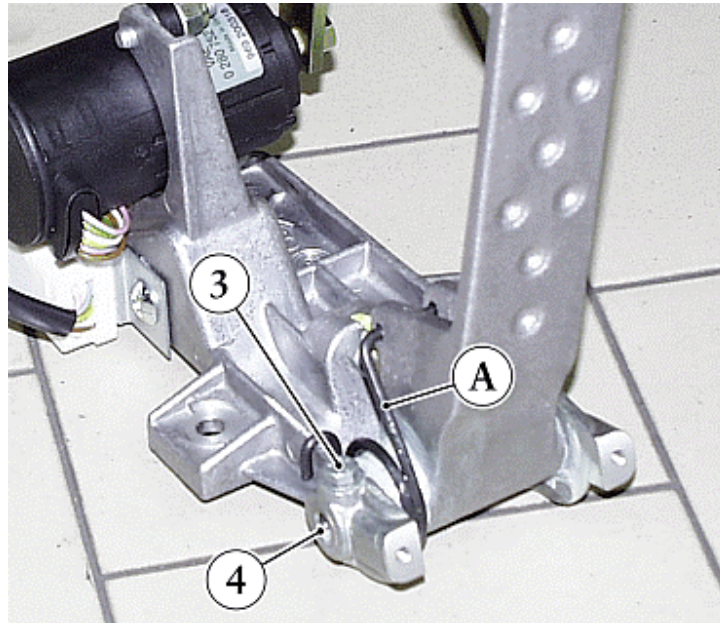


- Detach the sensor connection (1).
- Loosen the screws (2) and remove the entire control set from the passenger compartment.



Removing the pedal

- Detach the rod terminal from the ball joint on the pedal.
- Unscrew the screw **(3)** fastening the pin **(4)** to the bracket.
- Rivet the pin and remove the pedal together with its check spring **(A)**.



- Keep the pedal's lateral shims.
It is possible to replace the pedal bushings in case the pedal shows an excessive backlash on the bracket's pin.
- When refitting, lubricate the pin **(4)** with **KLUBER ISOFLEX TOPAS NB 52** grease and insert the end of the spring **(A)** in the holes found on the pedal.

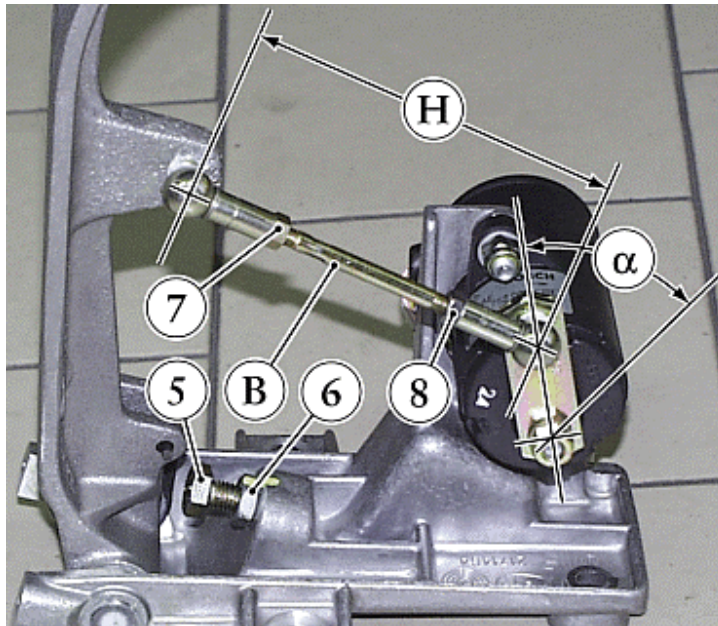
Adjusting the pedal position

The pedal's rest position is determined by the sensor and it depends on the centreline distance of the rod joints (**B**).

If the centerline distance has been modified during maintenance interventions, the original setting must be restored as follows:

- loosen the lock nuts (**7** and **8**) and rotate the rod (**B**) until reaching a centerline distance (**H**) of about **101,3 mm (84,3 mm**, for the right-hand drive version) between the end joints;
- tighten the lock nuts.

The pedal end stroke is determined by the lever's (**C**) angular travel (α) of **68° 32'**.



Should the pedal travel need adjusting due to replacement or maintenance interventions, follow the instructions below:

- make sure the centreline distance (**H**) between the rod joints (**B**) complies with the prescribed values and position the pedal so that it features the prescribed travel;
- screw down the screw (**5**) until its head hits the pedal board;
- lock the nut (**6**) in this position.



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
		4	March 2005	1

SUBJECT: 360 Challenge Fuel Tank Servicing

In the event that the fuel tanks on a 360 Challenge car produced and assembled in model year 2000 have an expiration date of 2005, there is a special discount available from AeroSekur S.p.A. to service those tanks until, 12/31/2005

Car	P/N	FTC	General servicing	Out of order
Ferrari 360 Challenge DX	181484	1980	€ 710,00	€ 100,00
Ferrari 360 Challenge SX	181485	1981	€ 710,00	€ 100,00

- Prices are without VAT

- Prices are related to gasoline tank sent without shell and internal accessories, otherwise it will be added a fixed price of € 95,00.

Timing: 5 working days starting from the arrival date of the tanks to our warehouse

Shipment: To be paid

Packing: Included

Payment: Bank Credit Transfer
Banca Toscana – Filiale di Pomezia
C/C 2048.22
ABI 03400
CAB 22000



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
		5	March 2005	1

SUBJECT: 360 Challenge - Safety Component Inspection

Please find the list of safety components that **MUST** be checked and verified before participating to the first race.

Please note: cars with expired components, will not be allowed to entry the race.

- **Fire extinguisher:** check the sticker in the upper part of the extinguisher for the expiration date;
 - **Driver's seat:** check the sticker on the left side near the seat's mount (5 years' validation);
 - **Safety belt:** check the sticker for the expiration date;
 - **Gasoline tank:** take off the hatch at the tank's back and check the sticker in the upper left position with the manufacturing date (5 years' validation).
- [See Bulletin N° 4]



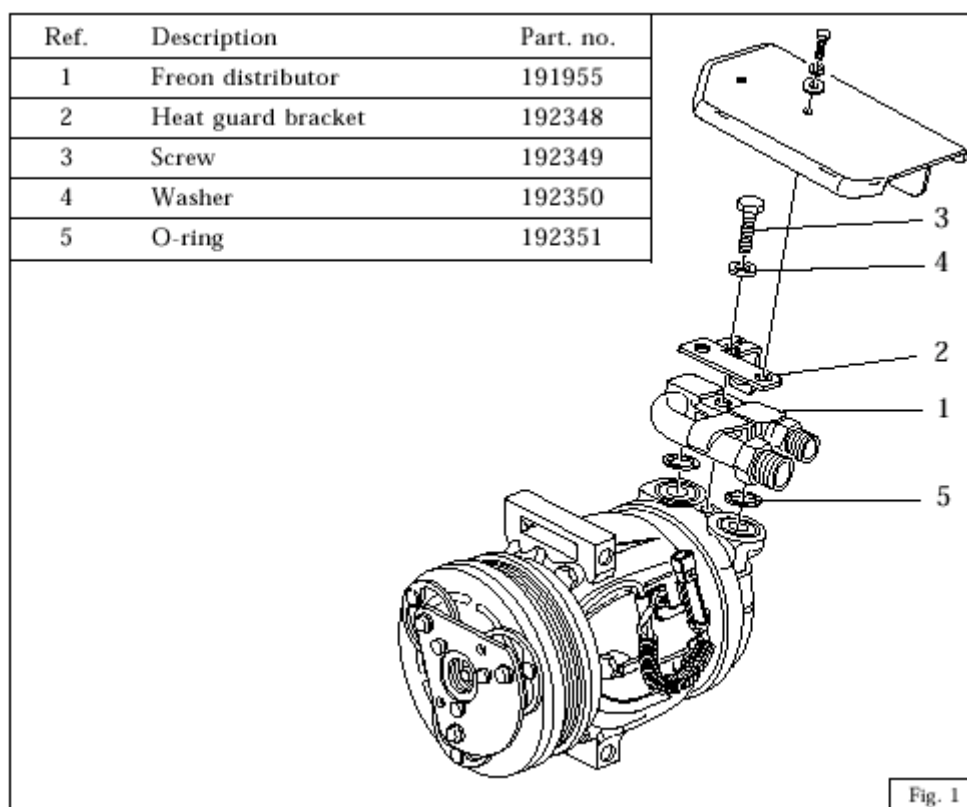
Model
360 Modena and 360 Spider

Date
October 2001

Area
8
Progressive No. **960**

SUBJECT: AIR CONDITIONING COMPRESSOR, PART NUMBER 180041

Please be advised that, the parts listed below will soon be available from our Parts Department for the air conditioning compressor, part number **180041** (Fig. 1). You must order them directly from the Parts Department as needed.



NOTE 1: In the event that the heat guard bracket is replaced (Ref. 2), install the screws (Ref. 3) to a torque of **5.4 Nm** (48 inch pounds).

NOTE 2: Beginning **October 1, 2001**, the complete air conditioning compressor will not be accepted under warranty if the cause of the malfunction is related to the above listed, single components.



Model	Date	Area	3
360 Modena and Spider	September 2001	Progressive No.	967

SUBJECT: DIAGNOSTIC SOFTWARE - 360 F1 GEARBOX

Please be advised that, we will be sending you, free of charge from Digitek, a new CD-ROM for the 360 F1 gearbox diagnosis which contains new ISO CODE information. This new CD-ROM replaces the one recently sent to you and described in the Technical Information 951 (August 2001). The new CD-ROM can be identified by the information printed on the CD-ROM itself:

"Software Diagnosi Kit Cambio Marelli F1 NUOVO CODICE ISO 360 Modena"

Since there may be some confusion regarding the installation and application of this software and other software recently sent out, below please find the proper procedure for the installation and use of the latest software for the SD2 on the 360.

Please follow the directions below, in order, for the installation of the SD2 Tester software and 360 diagnostic software on the PC.

1. Install the new Base Software CD-ROM version 1.04.
CD-ROM identification: "Software Base Ferrari WSDC32 ver 1.04.00"
Procedure: The SD2 program should not be running, install from CD drive.
2. Install the 360 Modena 2nd release CD-ROM
CD-ROM identification: "Part Number 95970230"
Procedure: From the "Maintenance" menu select "Update"
3. Install the new F1 Gearbox CD-ROM
CD-ROM identification: "Software Diagnosi Kit Cambio Marelli F1 NUOVO CODICE ISO 360 Modena"
Procedure: From the "Maintenance" menu select "Update"

Please follow the directions below for installation on the SD2 Tester.

1. Format the tester's hard disk.
From the PC, select the "Maintenance" menu and then select "Tester Disk Formatting".
2. Proceed with the downloading of the programs to the SD2 tester normally.

Once installed, this will correct previous problems with the ABS/ASR bleeding and the F1 system. You no longer need to reinstall the 360 CD version 1 for these programs.

To confirm that the proper software is installed, please review the attached sample printout from the PC showing the version numbers and dates.

In order to avoid future confusion, please return the following CD-ROMs to your Area Technical Manager.

1. SD2 Base Software version 1.03 (distributed with SD2)
2. 360 CD version 1 (part number 95970229)
3. Old 360 F1 CD-ROM (sent with T.I. 951)



SISTEMA DIAGNOSI SD2 - FERRARI s.p.a.
Workshop Data :

S/N Tester : -----
Print Data: 16:59:54 - 04/10/2001

ECU software installed

ECU	PC SW Ver. Date	SD2 SW Ver. Date	Vehicles
ABS/ASR 5.3 BOSCH 360MODENA	2.20.00 12/12/2000	2.06.00 12/12/2000	F131
ANTIFURTO BOSCH 360MODENA	1.16.00 08/11/2000	1.06.00 31/10/2000	F131
MOTRONIC ME 7.3 BOSCH 360	2.33.00 10/11/2000	2.22.00 10/11/2000	F131
SOSPENSIONI BOGE 360MODENA	2.14.00 08/11/2000	2.05.00 12/10/2000	F131
CONDIZIONATORE DIAVIA 360MOD	2.19.00 14/11/2000	2.05.00 14/11/2000	F131
CRUSCOTTO MARELLI 360MODENA	2.23.00 15/11/2000	2.05.00 14/11/2000	F131
CAMBIO MARELLI 360MODENA	2.28.00 11/09/2001	2.13.00 07/09/2001	F131
ALZACRISTALLI SDC 360MODENA	1.11.00 07/09/2000	1.05.00 07/09/2000	F131
AIRBAG TRW 360 MODENA	3.00.00 8/11/2000	3.00.00 08/11/2000	F131
CAPOTE CTS 360 MODENA	2.23.00 15/11/2000	2.12.00 15/11/2000	F131



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
	All Models	FNA - 13	May 2004	1

SUBJECT: Anti Evaporative System Labor Operations

We are pleased to announce the following new labor operations that must be used when testing the Anti Evaporative System. Straight time must no longer be used when testing the Anti Evaporative System.

The New Labor Operations to be used are as follows:

MODEL	LABOR OPERATION	TIME
575M Maranello	1402911	1.0
Enzo	1400381	1.0
360 Modena	1402071	1.0
360 Spider	1400162	1.0
Challenge Stradale	1400162	1.0
612 Scaglietti	1400381	1.0



**FERRARI NORTH AMERICA, INC.
TECHNICAL SERVICE DEPARTMENT**

TECHNICAL INFORMATION

Area	Model	Bulletin n°	Date	Pages
	All Models	FNA - 16	October 2004	1

SUBJECT: Technical Bulletin CD - October 2004

For your information, you will be sent automatically, a new CD containing Ferrari Technical Bulletins. This CD, dated October 2004, will have all bulletins starting from August 10th, 2001 up to October 1st, 2004. This includes the bulletins that were originally published on the Warranty Policies and Procedures CD.

If you require additional copies of this CD, please contact the Technical Support dept. at technicalsupport@ferrariusa.com

Any bulletins sent after October 1st, 2004 will be e-mailed to your respective addresses at your dealership accounts. Please make it a habit to check for new or updated information every day through your e-mail accounts.

Ferrari

RECALL CAMPAIGN
INSTRUCTIONS



RECALL CAMPAIGN

REF. NO. 34

**EQUIPMENT RECALL
U.F.I. OIL FILTER
PART NUMBER 111782**

OCTOBER 2001

**READ , INITIAL
AND PASS ON »**

Service Manager	Parts Manager	Service Writer	Technician					Warranty Clerk



Ferrari North America, Inc.

October, 2001

Dear Ferrari Dealer:

Ferrari S.p.A., the manufacturer of Ferrari automobiles, has determined that a defect, which relates to motor vehicle safety, exists with an OEM replacement component.



This OEM replacement component is an oil filter and is identified by Ferrari part number 111782 and manufactured UFI – Universal Filter International SpA. This oil filter was, for a period of time, manufactured in a different manner from the previous version of this filter having the same Ferrari part number. As a result, the oil filter may leak engine oil from the seal ring area. If engine oil leakage would occur, there is the potential that a vehicle fire could result. The incorrectly manufactured oil filter features a “welded” plate as opposed to a “riveted” plate and has been manufactured from May 31, 2000 through May 2001.

This incorrectly manufactured oil filter may have been fitted to any of the following Ferrari vehicles during routine maintenance:

Dino 206 GT	365 GT4BB
Dino 246 GT/GTS	365 GTC (1970)
Dino 308 GT4	365 GTC/GTS
208 GTB/GTS turbo	365 GTC4
208 GT4	365 GTS4
208 GTB/GTS turbo intercooler	400I GT/GTA
GTB/GTS turbo	400 GT/GTA
275 GTB4	412 GT/GTA
308 GT4	512BB
308 GTB/GTS	512i BB
308i GTB/GTS	Mondial 3.2
328 GTB/GTS	Mondial 3.2 Cabriolet
330 GT	Mondial 8
330 GTC	Mondial 8 Cabriolet
365 GT	Mondial 4V
365 GT4	288 GTO

The remedy consists of inspecting the vehicle’s engine oil filter and verifying the production date, which is stamped on the top of the oil filter. If the oil filter production date is within the affected range (May 31, 2000 through May 2001) the oil filter will be replaced with a new style oil filter, also manufactured by UFI, having a Ferrari part identifier of 191993.



This operation will be performed free of charge to the vehicle owner, and will require up to approximately **0.3 hours** to complete.

Accordingly, you must review your service records for these vehicles and determine if this oil filter has been fitted. For all records that indicate that this oil filter was in fact fitted, you must contact the customer using the attached letter, to have the vehicle's oil filter inspected and if necessary replaced. In addition, you must post the attached "Safety Recall Notice" prominently in your service department and in any customer waiting area. We would also ask that you contact any person or persons who may have purchased this oil filter "over the counter" from your parts department.

You should already have this new oil filter available and you must order any additional parts as required from our Parts Department.

Upon transmittal of the repair under the normal warranty system, we will of course reimburse you for the parts and the labor necessary to carry out this campaign as described in the attached information. Since some of the affected vehicles may not be in our warranty system due to their early production dates, you must mail a copy of the invoice (repair order) directly to the Ferrari North America Warranty Department for reimbursement.

Obviously, if you have any of the affected vehicles in your stock, you must not sell them until you have performed the necessary inspection and repairs.

Thank you for your cooperation.

Best Regards,

A handwritten signature in blue ink, appearing to read "Jeffrey B. Wilson".

Jeffrey B. Wilson
National Warranty Manager
Certification Engineer

RECALL CAMPAIGN NO. 34
Equipment Recall
U.F.I. Oil Filter, Part Number 111782
RECALL CAMPAIGN OVERVIEW

INTRODUCTION: U.F.I. Oil Filter inspection and replacement

SUBJECT: Recall Campaign No. 34

VEHICLES: Possible affected vehicles

Dino 206 GT	365 GT4BB
Dino 246 GT/GTS	365 GTC (1970)
Dino 308 GT4	365 GTC/GTS
208 GTB/GTS turbo	365 GTC4
208 GT4	365 GTS4
208 GTB/GTS turbo intercooler	400I GT/GTA
GTB/GTS turbo	400 GT/GTA
275 GTB4	412 GT/GTA
308 GT4	512BB
308 GTB/GTS	512i BB
308i GTB/GTS	Mondial 3.2
328 GTB/GTS	Mondial 3.2 Cabriolet
330 GT	Mondial 8
330 GTC	Mondial 9 Cabriolet
365 GT	Mondial 4V
365 GT4	288 GTO

CONDITION: The OEM replacement oil filter is identified by Ferrari part number 111782 and manufactured UFI – Universal Filter International SpA. This oil filter was, for a period of time, manufactured in a different manner from the previous version of this filter having the same Ferrari part number. As a result, the oil filter may leak engine oil from the seal ring area. If engine oil leakage would occur, there is the potential that a vehicle fire could result. The incorrectly manufactured oil filter features a “welded” plate as opposed to a “riveted” plate and has been manufactured from May 31, 2000 through May 2001.

REMEDY: The remedy consists of inspecting the vehicle’s engine oil filter and verifying the production date, which is stamped on the top of the oil filter. If the oil filter production date is within the affected range (May 31, 2000 through May 2001) the oil filter will be replaced with a new style oil filter, also manufactured by UFI, having a Ferrari part identifier of 191993.

PARTS: The parts required for this repair are identified by the following part numbers:

Part Number	Quantity	Description
191993	1	U.F.I. Oil Filter

RECALL CAMPAIGN NO. 34
Equipment Recall
U.F.I. Oil Filter, Part Number 111782
RECALL CAMPAIGN OVERVIEW
PAGE 2

LABOR:

Oil Filter Replacement:

Cost Code	24
Campaign Number	34
Defect Code	01
Component Code	160 001
Labor Operation (includes all labor).....	160 001 0
Total Operation Time.....	0.3 hours

REIMBURSEMENT:

Upon transmittal of the repair under the normal warranty system, we will of course reimburse you for the parts and the labor necessary to carry out this campaign as described in the attached information. Since some of the affected vehicles may not be in our warranty system due to their early production dates, you must mail a copy of the invoice (repair order) directly to the Ferrari North America Warranty Department for reimbursement.

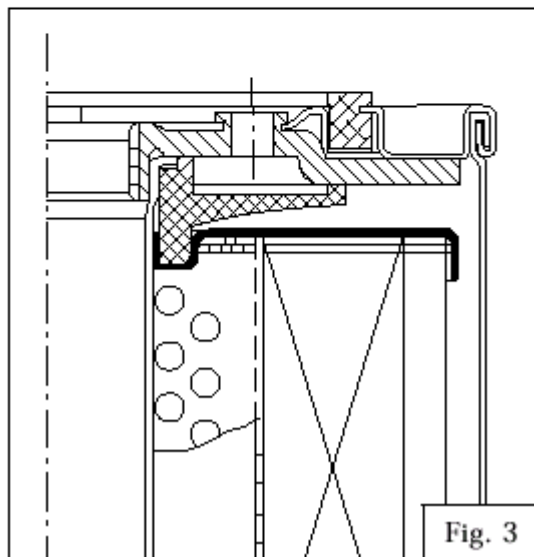
RECALL CAMPAIGN NO. 34
Equipment Recall
U.F.I. Oil Filter, Part Number 111782
Technical Instructions

NOTE: Before starting this procedure, you **MUST** read these instructions carefully and completely.

Procedure:

Verification and Replacement:

- Inspect the vehicle's engine oil filter and verify the production date, which is stamped on the top of the oil filter (fig. 2).
- If the oil filter production date is within the affected range (**May 31, 2000 through May 2001**) the oil filter must be replaced with the new style oil filter, also manufactured by UFI, having a Ferrari part number **191993**.
- It is necessary to torque the new oil filter (part number 191993) using the special tool **AV 3401** (part number 95973401), already in your possession, to a value of **25 ± 1 Nm** (18.44 ± 0.7 ft.lbs.).
Reference Technical Information 952.





Ferrari North America, Inc.

October, 2001

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.....

.....



Serial Number:

Dear Ferrari Customer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

The Ferrari factory and U.F.I. Universal Filter International SpA, have determined that the OEM Replacement Oil Filter (Ferrari part number **111782**), manufactured by U.F.I. was, for a period of time, manufactured in a different manner from the previous version of this oil filter having the same part number. As a result, the oil filter may leak engine oil from the seal ring area. If engine oil leakage would occur, there is the potential that a vehicle fire could result. The incorrectly manufactured oil filter features a “welded” plate as opposed to a “riveted” plate and has been manufactured from **May 31, 2000 through May 2001**.

The remedy consists of inspecting the vehicle’s engine oil filter and verifying the production date, which is stamped on the top of the oil filter. If the oil filter production date is within the affected range (**May 31, 2000 through May 2001**) the oil filter must be replaced with a new style oil filter, also manufactured by UFI, having a Ferrari part identifier of **191993**.

Since your car may be among those affected by the above condition, we kindly ask you to immediately contact any Authorized Ferrari Dealer in order to arrange an inspection of your automobile and if necessary have the corrective action performed.



The corrective action for the above listed repair will be performed free of charge to you and will require up to approximately **0.3 hours** to complete. Please plan, however, to leave your vehicle with the dealership to allow the dealer some flexibility for scheduling your repairs.

By the time you receive this letter, the Authorized Ferrari Dealers will have been supplied with the parts and the instructions to perform the repair. If the Dealer fails or is unable to make the necessary repairs free of charge within a reasonable time, or if you have any problem obtaining the needed repair, you should inform the National Headquarters of Ferrari North America, Inc. at:

Ferrari North America, Inc.
250 Sylvan Avenue
Englewood Cliffs, NJ 07632
(201) 816-2651 (National Technical Office)

If the affected vehicle is not repaired free of charge to you within a reasonable time, you may submit a written complaint to the Administrator, National Highway Traffic Safety Administration, (NHTSA), 400 Seventh Street, SW, Washington, DC 20590. You may also telephone the Auto Safety Hotline at 888-327-4236.

We urge you to comply with this notice promptly and we apologize for any inconvenience this may cause you.

Best Regards,

Ferrari North America, Inc.
Technical Department



Safety Recall Notice



Attention Ferrari Customers

The Ferrari factory and U.F.I. Universal Filter International SpA, have determined that the OEM Replacement Oil Filter (**Ferrari part number 111782**), manufactured by U.F.I. was, for a period of time, manufactured in a different manner from the previous version of this oil filter having the same part number. As a result, the oil filter may leak engine oil from the seal ring area. If engine oil leakage would occur, there is the potential that a vehicle fire could result. The incorrectly manufactured oil filter features a “welded” plate as opposed to a “riveted” plate and has been manufactured from **May 31, 2000 through May 2001**.

The remedy consists of inspecting the vehicle’s engine oil filter and verifying the production date, which is stamped on the top of the oil filter. If the oil filter production date is within the affected range (May 31, 2000 through May 2001) the oil filter must be replaced with a new style oil filter, also manufactured by UFI, having a Ferrari part identifier of 191993.

Please contact any Authorized Ferrari Dealer to have your vehicle inspected and if necessary have the oil filter replaced. This operation will be performed free of charge to the vehicle owner, and will require up to approximately **0.3 hours** to complete.

If the Dealer fails or is unable to make the necessary repairs free of charge within a reasonable time, or if you have any problem obtaining the needed repair, you should inform the National Headquarters of Ferrari North America, Inc. at:

Ferrari North America, Inc.
250 Sylvan Avenue
Englewood Cliffs, NJ 07632
(201) 816-2651 (National Technical Office)

If the affected vehicle is not repaired free of charge to you within a reasonable time, you may submit a written complaint to the Administrator, National Highway Traffic Safety Administration, (NHTSA), 400 Seventh Street, SW, Washington, DC 20590. You may also telephone the Auto Safety Hotline at 888-327-4236.

Thank You,
Ferrari North America, Inc.
Technical Department

This oil filter may have been fitted on the following vehicles:

Dino 206 GT	308 GT4	365 GT4BB	512BB
Dino 246 GT/GTS	308 GTB/GTS	365 GTC (1970)	512i BB
Dino 308 GT4	308i GTB/GTS	365 GTC/GTS	Mondial 3.2
208 GTB/GTS turbo	328 GTB/GTS	365 GTC4	Mondial 3.2 Cabriolet
208 GT4	330 GT	365 GTS4	Mondial 8
208 GTB/GTS turbo inter.	330 GTC	400i GT/GTA	Mondial 8 Cabriolet
GTB/GTS turbo	365 GT	400 GT/GTA	Mondial 4V
275 GTB4	365 GT4	412 GT/GTA	288 GTO



RECALL CAMPAIGN

REF. NO. 41
HYDRAULIC STEERING PIPE

360 MODENA, 360 SPIDER
MODEL YEAR 2003

360 CHALLENGE STRADALE
MODEL YEAR 2004

JUNE 2004

READ , INITIAL
AND PASS ON »

Service Manager	Parts Manager	Service Writer	Technician					Warranty Clerk



Ferrari North America, Inc.

June XX, 2004

Dear Ferrari Dealer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act. Ferrari S.p.A., the manufacturer of Ferrari automobiles, has decided that a defect, which relates to motor vehicle safety, exists in certain 2003 & 2004 model year Ferrari vehicles.



On certain Ferrari vehicles, the defect involves a slight oil leak in the hydraulic steering delivery pipe from the pump to the steering rack. This minor leakage may cause or could lead to a gradual reduction of the assisted steering function. Such circumstances could lead to a loss of vehicle control and could result in a crash.

The breakdown of possibly affected vehicles is as follows:

- Starting with VIN: **ZFFYT53A830130383** & Vehicle Assembly No. **48057**
- Ending with VIN: **ZFFYT53A930133549** & Vehicle Assembly No. **50593**

All affected hydraulic steering delivery pipes from the pump to the steering rack will be replaced. The operation will be performed free of charge to the vehicle owner, and will require approximately 3.5 hours for the 360 Coupes & 360 Challenge Stradales to complete. On the 360 Spyders, it will require approximately 5.1 hours to complete.

We have accordingly sent notices to all owners of the affected vehicles advising them of this problem and requesting that they contact any Authorized Ferrari Dealer for the repairs, as per the attached notification letter. Federal regulation requires that any vehicle lessor receiving this recall notice must forward a copy of this notice to the lessee within ten working days.

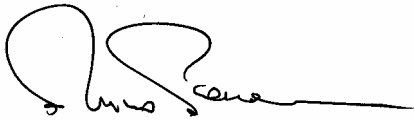
Please notice that a supply of these parts will be shipped automatically to you based on the number of vehicles in your servicing area. Any additional quantities must be ordered, as needed, from our Parts Department. Upon

transmittal of the repair under the normal warranty system, we will of course reimburse you for the parts and the labor necessary to carry out this campaign.

Obviously, if you have any of the affected vehicles in your stock, you must not sell them until you have performed the necessary repairs. If you have already sold any vehicles with the chassis numbers specified in the enclosed instructions and have not yet sent in the new owner information to Ferrari North America, Inc (FNA), please do so at once so we may notify these owners.

Thank you for your cooperation and support on this matter.

Best Regards,

A handwritten signature in black ink, appearing to read 'Enzo Francesconi', with a long horizontal line extending to the right.

Enzo Francesconi
Vice President of Technical Services
Ferrari North America, Inc.
Technical Department



Ferrari North America, Inc.

June XX, 2004

«FIRST» «LAST»
«ADD1»
«ADD2»
«CITY», «ST» «ZIP»

Serial Number: «VIN» «ASSY»



Dear Ferrari Customer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act. Ferrari S.p.A., the manufacturer of Ferrari automobiles, has decided that a defect which relates to motor vehicle safety exists in certain 2003 & 2004 model year Ferrari vehicles.

The defect involves a slight oil leak in the hydraulic steering delivery pipe from the pump to the steering rack. This minor leakage may cause or could lead to a gradual reduction of the assisted steering function. Such circumstances could lead to a loss of vehicle control and could result in a crash.

The breakdown of possibly affected vehicles is as follows:

- Starting with VIN: **ZFFYT53A830130383** & Vehicle Assembly No. **48057**
- Ending with VIN: **ZFFYT53A930133549** & Vehicle Assembly No. **50593**

All affected hydraulic steering delivery pipes from the pump to the steering rack will be replaced. The operation will be performed free of charge to the vehicle owner, and will require approximately 3.5 hours for the 360 Coupes & 360 Challenge Stradales to complete. On the 360 Spyders, it will require approximately 5.1 hours to complete. We ask you to immediately contact any Authorized Ferrari Dealer in order to arrange an inspection of your automobile and to have the corrective action performed. Please plan to leave your vehicle with the dealership to allow the dealer some flexibility for scheduling your repairs.

By the time you receive this letter, the Authorized Ferrari Dealers will have been supplied with the parts and the instructions to perform the repair. If the Dealer fails or is unable to make the necessary repairs free of charge within a reasonable time, or if you have any problem obtaining the needed repair, you should inform the national headquarters of Ferrari North America, Inc. at:

Ferrari North America, Inc.
250 Sylvan Avenue
Englewood Cliffs, NJ 07632
(201) 816-2651 (National Technical Office)

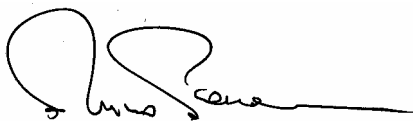
If the affected vehicle is not repaired free of charge to you and within a reasonable time, you may submit a written complaint to the Administrator, National Highway Traffic Safety Administration, (NHTSA), 400 Seventh Street, SW, Washington, DC 20590. You may also telephone the toll free Auto Safety Hotline at 888-327-4236.

You may be eligible to receive reimbursement for the cost you incurred if you already have obtained a remedy for a problem associated with the defect described in this letter. However, you still must have this corrective action performed, regardless of any previous repairs that may have been performed. Information about the reimbursement program for pre-notification repairs is provided in the enclosure to this letter. Federal regulation requires that any vehicle lesser receiving this recall notice must forward a copy of this notice to the lessee within ten working days.

If you no longer own this vehicle or your address has changed, please complete the enclosed prepaid yellow card and return it to Ferrari North America, Inc.

We urge you to comply with this notice promptly and we apologize for any inconvenience this may cause you.

Best Regards,

A handwritten signature in black ink, appearing to read 'Enzo Francesconi', with a long horizontal flourish extending to the right.

Enzo Francesconi
Vice President of Technical Services
Ferrari North America, Inc.
Technical Department

ENCLOSURE

Pre-Notification Reimbursement Program

You may be eligible for reimbursement if you previously incurred out-of-pocket costs for repairs or replacements of the Hydraulic steering delivery pipe covered by this recall campaign number 41.

1. This reimbursement program applies to the vehicles listed below and in the attached letter:

- Model year 2003 Ferrari 360 Modenas, Spyders and MY 2004 360 Challenge Stradales with Vehicle Identification Numbers from **ZFFYT53A830130383** to **ZFFYT53A930133549**, which have a Vehicle Assembly Number from **48057** to **50593**.

2. This reimbursement program applies to repairs or replacements of the Hydraulic steering delivery pipe mentioned above.

3. This reimbursement program applies to repairs or replacements of all or part of the Hydraulic steering delivery pipe of a vehicle listed above if such repair or replacement was made at any time up to ten days following the mailing of the attached notification letter.

4. This reimbursement program does not apply to repairs or replacements that were made within the period during which the original warranty would have provided for a free repair of the problem addressed by this recall, unless (i) a franchised dealer or authorized representative of Ferrari denied warranty coverage or (ii) the repair made under the warranty did not remedy the problem. Reimbursement also will not be provided if the pre-notification remedy was not of the same type as the recall remedy provided herein, did not address the defect that led to this recall, or was not reasonably necessary to correct the defect.

5. To obtain reimbursement for pre-notification remedies, you will need to provide a receipt, which may be an original or copy, identifying the equipment replaced; and, if the pre-notification remedy was obtained at a time when the vehicle was covered under the original warranty program, documentation

indicating that the manufacturer's dealer or authorized facility either refused to remedy the problem addressed by the recall under the warranty or that the warranty repair did not correct the problem addressed by the recall. In addition, you will need to submit a written and signed claim for reimbursement that contains the information required in paragraph 6, below.

6. The claim for reimbursement should include the following information. (a) the name and address of the claimant; (b) identification of their vehicle's make, model, model year, and vehicle identification number; (c) identification of the Ferrari Campaign number (Campaign No. 41) or identification of the recall by reference to NHTSA's recall number; and (d) identification of the owner or purchaser of the vehicle at the time that the pre-notification remedy was obtained.

7. If you have any questions about the reimbursement program or need help in making a claim for reimbursement, please write or call Ferrari North America, Inc., at the following address and telephone number:

Ferrari North America, Inc.
250 Sylvan Avenue
Englewood Cliffs, NJ 07632
(201) 816-2651 (National Technical Office)

RECALL CAMPAIGN NO. 41
Ferrari 360 Modena, Spider & Challenge Stradale
“Hydraulic Steering Delivery Pipe”
RECALL CAMPAIGN OVERVIEW

INTRODUCTION: Ferrari 360 Modena, Spider & Challenge Stradale

SUBJECT: Recall Campaign No. 41

VEHICLES: Please see the attached list of affected vehicles

The list shows that the affected Ferrari vehicles with **Vehicle Chassis Numbers from 130383 to 133549** and **Vehicle Assembly Numbers from 48057 to 50593 respectively are affected by this recall.**

CONDITION: The defect involves a slight oil leak in the hydraulic steering delivery pipe from the pump to the steering rack. This minor leakage may cause or could lead to a gradual reduction of the assisted steering function. Such circumstances could lead to a loss of vehicle control and could result in a crash.

REMEDY: All affected hydraulic steering delivery pipes from the pump to the steering rack will be replaced. The operation will be performed free of charge to the vehicle owner, and will require approximately 3.5 hours for the 360 Coupes & 360 Challenge Stradales to complete. On the 360 Spyders, it will require 5.1 hours to complete.

RECALL CAMPAIGN NO. 41
Ferrari 360 Modena, Spider & Challenge Stradale
“Hydraulic Steering Delivery Pipe”
RECALL CAMPAIGN OVERVIEW

PARTS: The parts required for this repair are identified by the following part numbers:

Part No.	Description	Quantity
204081	Delivery pipe from pump to jointing (LHD)	1
209769	Delivery pipe from pump to jointing (RHD)	1
204084	Delivery pipe from jointing to steering rack (LHD)	1
204085	Delivery pipe from jointing to steering rack (RHD)	1
204080	Union	1
66212900	Protection	1
10261460	Gasket	1

LABOR: Replacement of the Hydraulic Steering Pipe

Coupe and Challenge Stradale Model

- Cost code.....24
- Campaign number41
- Component code510089
- Problem code01
- Labor Operation code5100898 (3.5 hrs)

Spider Model

- Cost code.....24
- Campaign number41
- Component code510089
- Problem code01
- Labor Operation code5100899 (5.1 hrs)

REIMBURSEMENT: Upon receipt of a warranty claim via MODIS CS

RECALL CAMPAIGN NO. 41

**Ferrari 360 Modenas, 360 Modenas F1, 360 Spiders,
360 Spiders F1 & 360 Challenge Stradales**

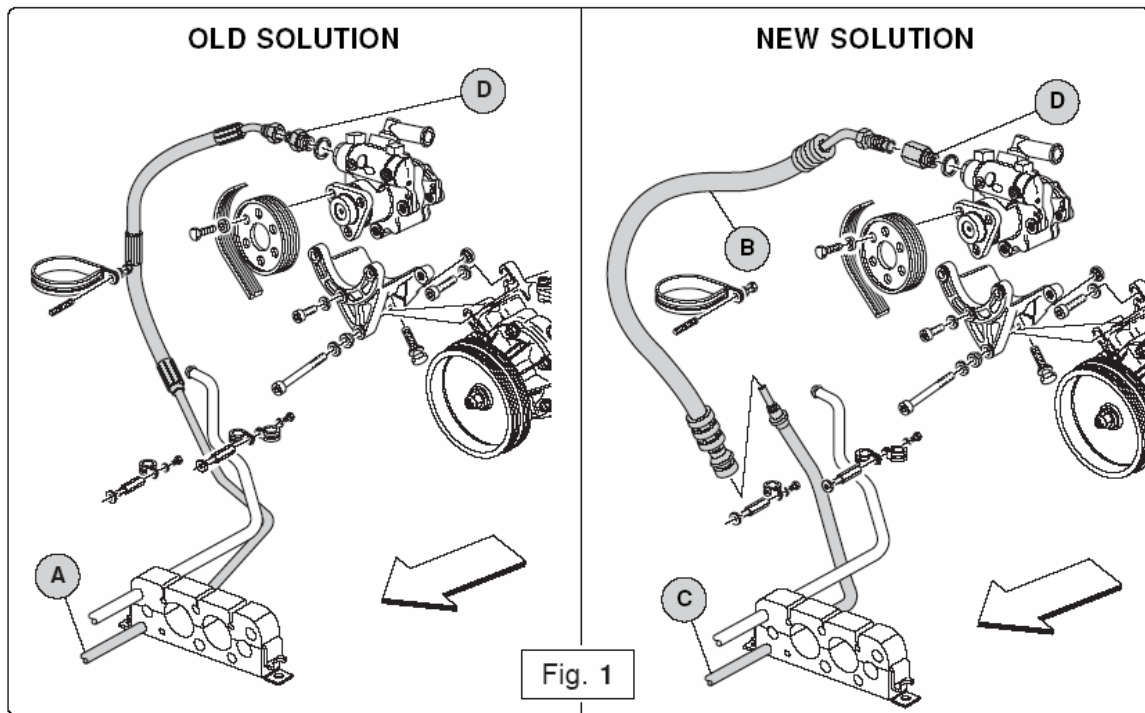
“Hydraulic Steering Delivery Pipe from Pump to Rack”

Technical Instructions

Ferrari S.p.A found a problem in the pipe in question. The slight oil leak malfunction may occur in the hydraulic steering delivery pipe which could lead to a gradual reduction of the assisted steering function. Therefore, Ferrari S.p.A informed Ferrari North America, Inc. about the potentially involved vehicles which should be serviced by replacing the components listed below.

The new design proposes the splitting of the hydraulic steering delivery pipe which runs from the pump to the steering rack (part **A** in the old design, Fig. **1**) into two parts:

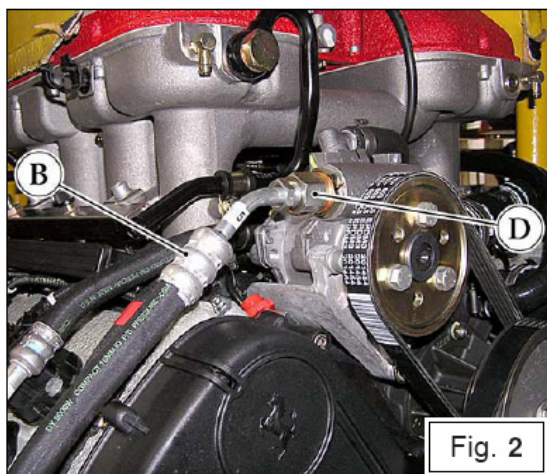
- Part **B** (new solution, Fig. **1**) made of a hosing, which runs from the pump to the under-floor **C**.
- Part **C** (new solution, Fig. **1**) made of a rigid piping, which runs across the entire under-floor.



Intervention procedures

The table below shows the parts involved in the modification and the related codes.

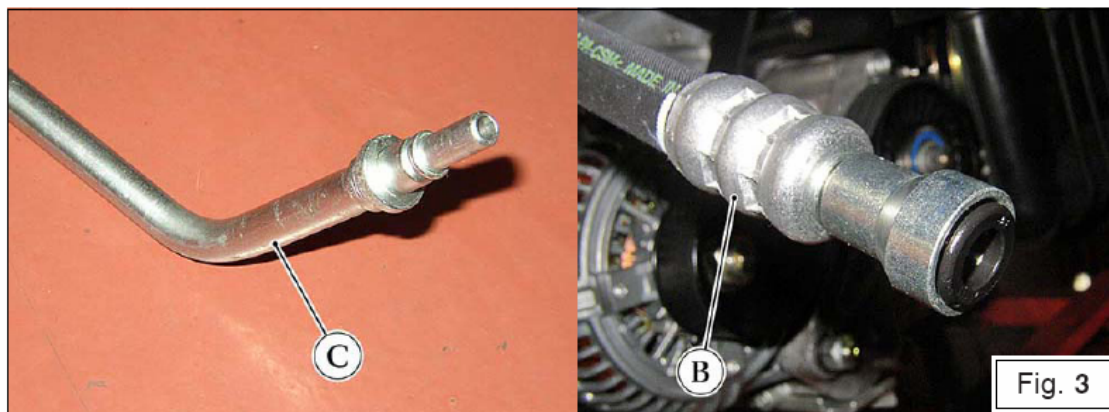
Ref.	Code	Description	Q.ty
Old solution			
A	185514	Cpl. delivery pipe from pump to steering rack (LHD)	1
	185515	Cpl. delivery pipe from pump to steering rack (RHD)	1
D	174091	Union	1
New solution			
B	204081	Delivery pipe from pump to jointing (LHD)	1
	209769	Delivery pipe from pump to jointing (RHD)	1
C	204084	Delivery pipe from jointing to steering rack (LHD)	1
	204085	Delivery pipe from jointing to steering rack (RHD)	1
D	204080	Union	1
E	66212900	Protection	1
F	10261460	Gasket	1



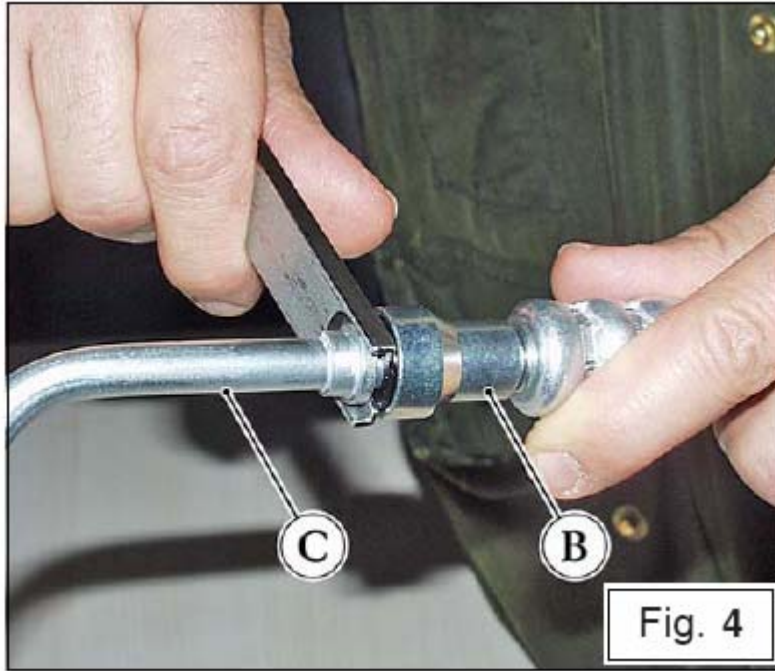
In addition to the pipe in question, the union (**D**), which has a female section housing the male section of the pipe (**B**), will also be replaced (Fig. 2).

Before carrying out this service, carefully clean the pipes and hoses supplied.

The pipe and hose supplied (**B** and **C**) can be connected via a quick coupling, which has a male section on the rigid pipe **C**, and female section with a seal on the hose **B** (Fig. 3).



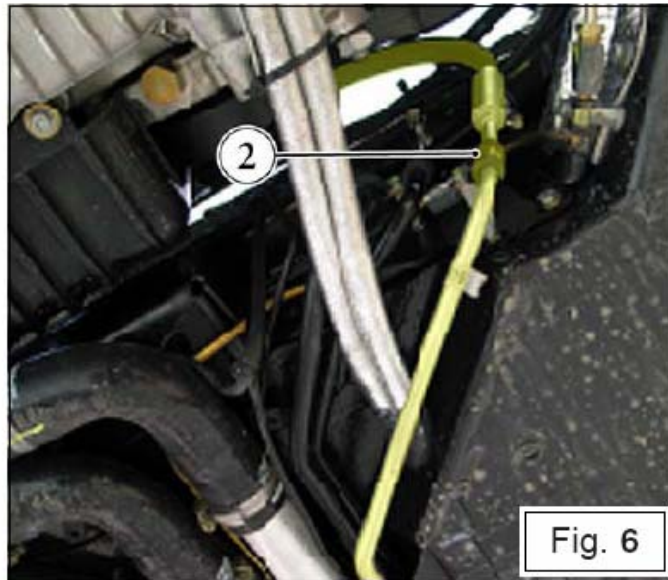
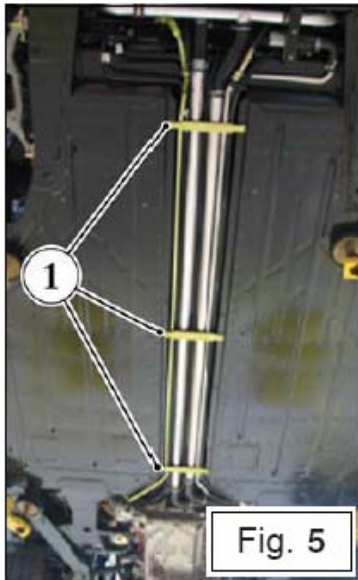
In order to separate the two sections of the pipe, you must use tool **AV 6038**, shown in the figure 4. The tool P/N **95976038** can be order from the Parts Department.



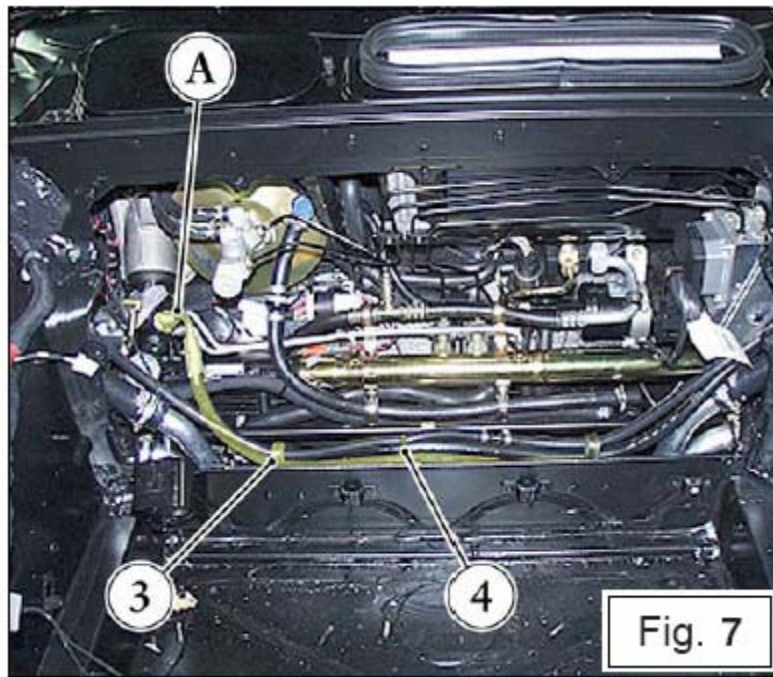
Below please find an explanation of the procedure for replacing the original pipe (A) with the new pipes (B) and (C):

- Remove the rear central and front sections of the under-floor (see **M 2.12** of the service manual).
- Remove the rear movable guard and the waterproof canvas from the luggage compartment as described in section **M 3.06** of the service manual.
- Access to the hydraulic steering delivery pipe union on the pump in the **360 Spider model** is only possible through the engine inspection hatch. Remove the engine inspection hatch following the instructions laid out in section **M 3.05** of the service manual.
- Remove the 3 plates shown as (1) in Figure 5. These plates are in position with the supports retaining the under floor pipes. Please undo the relative fastening screws.

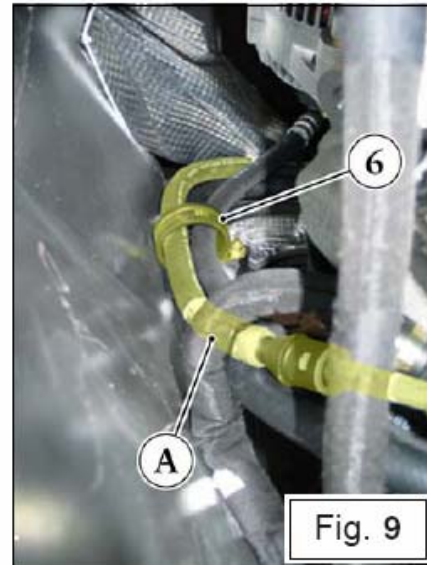
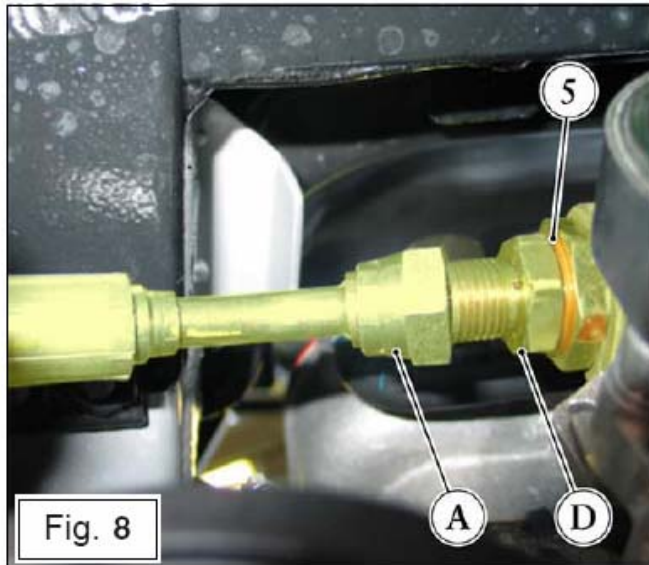
- Detach the sheathed bracket (2) from the bodywork and slide the hydraulic steering delivery pipe (A) (Fig.1) out of the under-floor supports (Fig. 6).



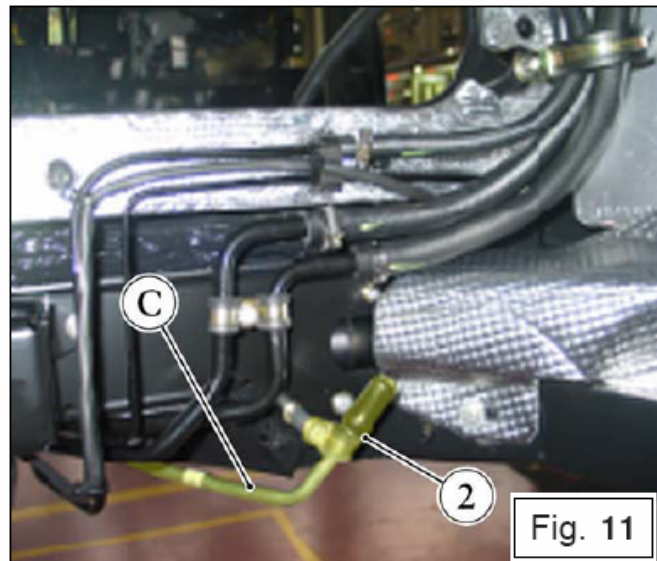
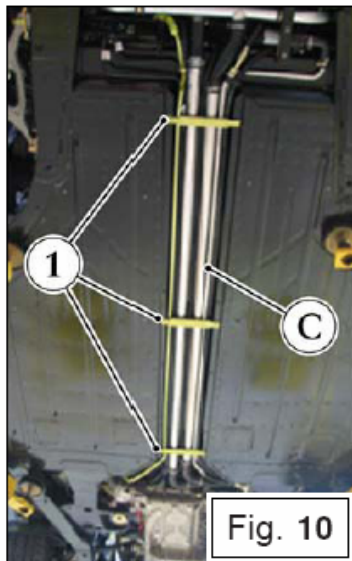
- Place a pan underneath the vehicle in order to salvage the oil that leaks out of the lines.
- Detach the sheathed bracket (3) supporting the pipes and cut the tear clamp (4) (Fig. 7)
- Detach the hydraulic union (A) from the steering rack (Fig. 7).



- Suitably protect the surrounding areas with rags and detach the delivery pipe union (A) from the hydraulic steering pump.
- Unscrew the union (D) with the seal (5) and remove them from the pump (Fig. 8)
- After loosening the hydraulic steering delivery pipe (A), slide it out of the sheathed bracket (6) (Fig. 9).
- Remove the hydraulic steering delivery pipe from the under-floor supports completely.

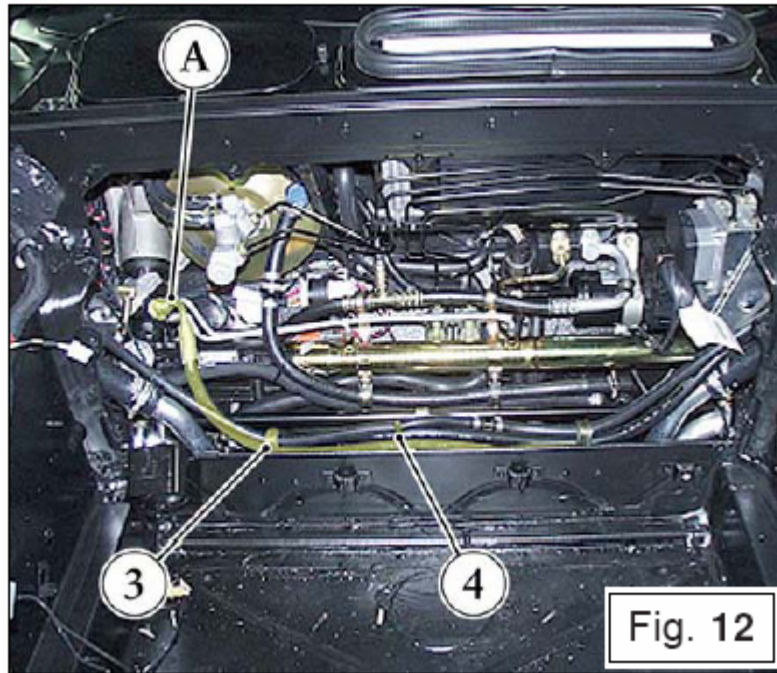


- Fit the new delivery pipe from the jointing to the steering rack (C) into the under-floor supports and refit the 3 original plates (1) (Fig. 10).
- Fasten the rear end of the pipe (C) to the sheathed bracket (2), removed earlier (Fig.11)



- Fasten the union on the delivery pipe (C) onto the steering rack, positioning it as shown in the figure and tightening it to a torque of **35 Nm** (Fig. 11).

- Fasten the pipe to the bodywork and to the radiator water draining pipe, refitting the sheathed clamp (3) removed earlier.
- Fit a tear clamp (4) at the point indicated in the figure, without over tightening it.



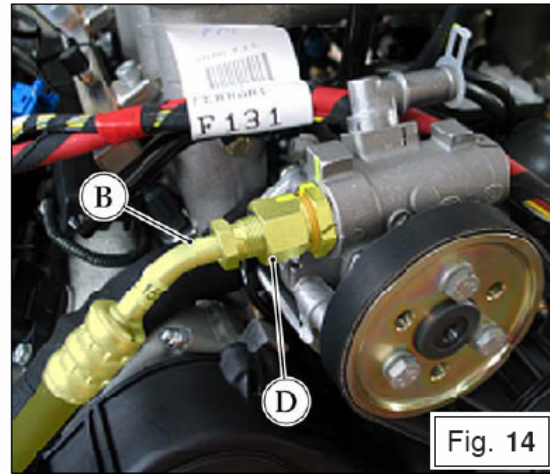
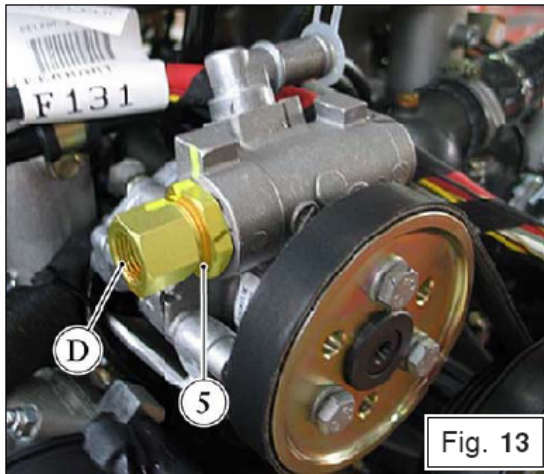
- After cleaning and degreasing the gluing surface, fit a new waterproof canvas on the luggage compartment panel and refit the movable panel removed earlier, following the instructions given for these operations in section **M 3.06** of the service manual (Fig. 12).

- Fit the new union (D) on the pump, inserting the new seal (5) supplied with the kit.

Note: The new seal is also described as a gasket in the part list (part number 10261460).

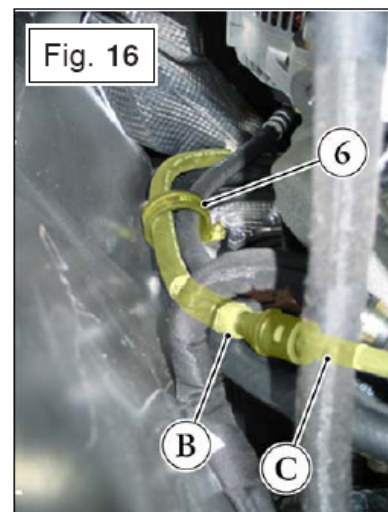
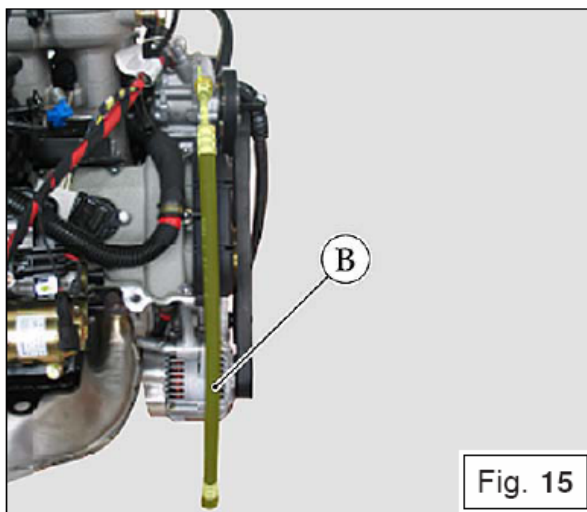
- Lock the union (D) on the pump to a torque of **40 Nm** (Fig. 13).
- Fit the new delivery pipe leading from the pump to the jointing (B) on the union (D) and position it in a way that the pipe is in a vertical position (Fig. 14).

- Lock the pipe (B) on the union (D) to a torque of **35 Nm**, contrasting it with the union (Fig. 15).



NOTE: The pipe (B) can be locked only once. Should it need to be unscrewed, it is absolutely essential that the pipe (B) is replaced as it cannot be locked on the union (D) again.

- Fit the pipe (B) into the sheathed bracket (6) and secure the latter on the bodywork (Fig. 16).



- Couple the quick coupling ends of the pipes (B) and (C) (Fig. 16).
- Proceed by refitting the structures removed for the operation, then bleed the system and top the oil up to level, as described in section **E 3.02** of the service manual.

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
130383	48057
130553	47931
130664	47848
130669	47850
130678	47916
130679	47854
130684	47884
130685	47893
130717	48150
130724	47849
130746	47887
130752	47904
130753	47952
130759	47913
130760	47925
130763	47963
130764	47944
130783	47867
130785	47872
130786	47875
130793	47903
130804	48166
130811	47930
130859	47926
130860	47932
130868	47964
130869	47955
130870	47974
130879	47983
130880	47992
130895	48007
130896	48008
130897	47973
130898	48006
130904	48010
130905	48030
130906	48012
130907	47999
130980	48029
130981	48052
130985	48075

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
130991	48058
130992	48098
130998	48096
130999	48100
131029	48047
131035	48050
131036	48059
131044	48078
131045	48077
131051	48103
131052	48086
131059	48109
131067	48112
131068	48147
131106	48161
131107	48118
131114	48168
131115	48177
131122	48202
131123	48184
131124	48187
131131	48205
131132	48207
131138	48225
131139	48222
131146	48253
131147	48230
131189	48256
131195	48297
131196	48257
131197	48269
131203	48313
131204	48270
131210	48279
131211	48290
131219	48332
131220	48300
131224	48314
131225	48316
131228	48334

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131230	48350
131253	48382
131254	48365
131260	48400
131267	48394
131268	48434
131284	48392
131329	48428
131330	48449
131335	48528
131343	48463
131344	48482
131349	48542
131353	48509
131360	48444
131361	48442
131362	48460
131366	48464
131367	48450
131368	48462
131374	48483
131375	48470
131376	48471
131383	48489
131384	48502
131385	48486
131392	48521
131393	48525
131394	48545
131395	48507
131400	48524
131405	48550
131406	48553
131417	48561
131423	48585
131428	48508
131429	48547
131430	48558
131431	48511
131439	48560

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131440	48532
131441	48580
131446	48583
131447	48586
131448	48554
131455	48588
131456	48587
131457	48555
131458	48563
131464	48622
131465	48623
131466	48642
131467	48599
131485	48630
131491	48739
131499	48649
131500	48644
131501	48601
131506	48651
131507	48661
131508	48683
131509	48607
131510	48605
131515	48686
131516	48697
131517	48628
131523	48698
131524	48699
131525	48701
131526	48631
131572	48626
131573	48828
131582	48783
131583	48650
131587	48681
131599	48746
131606	48764
131607	48668
131616	48782
131617	48678

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131624	48718
131641	48848
131644	48700
131645	48824
131650	48780
131654	48860
131655	48836
131663	48927
131667	48875
131671	48745
131675	48818
131676	48787
131677	48750
131684	48822
131685	48879
131686	48802
131687	48820
131694	48837
131695	48846
131696	48835
131697	48827
131703	48861
131704	48842
131705	48859
131713	48864
131714	48877
131715	48922
131719	48889
131720	48893
131721	48923
131786	48891
131791	48906
131796	48937
131797	48914
131800	48981
131801	48940
131802	48944
131805	48985
131806	48989
131816	49021

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131817	49033
131820	48911
131826	48904
131827	48921
131828	48915
131834	48931
131835	48934
131845	48991
131846	48946
131852	48949
131853	48987
131854	48988
131855	48982
131862	48992
131863	49016
131864	49019
131870	49035
131871	49018
131872	49039
131888	48941
131894	49034
131895	49040
131896	49056
131897	49037
131898	49072
131910	49058
131911	49074
131912	49104
131927	49075
131928	49083
131938	49014
131939	49159
131940	49099
131941	49013
131946	49098
131947	49123
131948	49119
131949	49096
131959	49118
131960	49146

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131999	49117
132000	49162
132001	49163
132021	49116
132022	49134
132030	49177
132067	49240
132074	49277
132077	49228
132083	49293
132084	49289
132089	49175
132090	49185
132098	49206
132105	49221
132106	49212
132115	49243
132121	49271
132122	49272
132133	49276
132134	49282
132135	49278
132177	49285
132179	49355
132187	49341
132208	49291
132215	49328
132216	49327
132217	49331
132225	49345
132226	49348
132227	49343
132236	49354
132237	49353
132243	49375
132244	49373
132272	49444
132276	49399
132277	49389
132278	49400

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132286	49432
132295	49410
132303	49467
132388	49423
132394	49448
132401	49456
132405	49519
132411	49468
132413	49424
132420	49479
132421	49495
132430	49470
132437	49632
132445	49539
132446	49530
132447	49555
132453	49562
132454	49540
132455	49544
132459	49472
132460	49502
132461	49516
132462	49541
132463	49582
132464	49621
132468	49609
132471	49651
132477	49642
132489	49573
132490	49579
132498	49577
132499	49595
132500	49630
132506	49606
132507	49608
132508	49607
132509	49611
132510	49697
132513	49612
132514	49643

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Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132523	49650
132524	49633
132525	50356
132572	49678
132573	49813
132578	49700
132583	49724
132584	49764
132588	49776
132593	49787
132599	49665
132600	49669
132601	49677
132608	49708
132609	49672
132610	49695
132611	49769
132617	49712
132618	49698
132619	49707
132626	49770
132627	49710
132628	49733
132633	49729
132634	49743
132671	49794
132672	49791
132673	49807
132674	50161
132680	49826
132685	49881
132686	49909
132688	49751
132689	49765
132690	49749
132691	49775
132695	49790
132696	49827
132697	49785
132698	49793

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Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132701	49806
132702	49811
132703	49836
132712	49833
132713	49831
132719	49828
132720	49867
132721	49850
132722	49866
132775	49872
132776	49895
132777	49946
132781	49949
132787	49938
132788	49957
132799	49873
132800	49875
132801	49889
132802	49885
132808	49904
132809	49886
132818	49907
132819	49910
132820	49911
132821	49923
132822	49982
132828	49929
132829	49943
132830	49959
132831	49956
132836	49988
132837	50000
132838	49965
132842	50046
132848	50029
132849	50061
132853	50075
132854	50083
132858	50091
132859	50111

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132860	50116
132863	49966
132864	49999
132865	50026
132866	50045
132875	49986
132876	50030
132877	50041
132883	50005
132884	50006
132885	50017
132886	50040
132887	50039
132888	50143
132895	50022
132896	50044
132897	50063
132898	50062
132905	50066
132906	50070
132907	50088
132970	50120
132971	50103
132977	50130
132978	50169
132984	50081
132985	50086
132986	50093
132991	50089
132992	50106
132993	50110
132994	50187
133002	50114
133003	50118
133004	50121
133005	50119
133012	50123
133013	50140
133014	50160
133015	50144

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
133046	50141
133047	50191
133052	50201
133060	50222
133066	50248
133072	50163
133073	50170
133074	50171
133075	50168
133082	50203
133083	50183
133084	50190
133085	50185
133089	50219
133090	50193
133091	50208
133092	50218
133099	50228
133100	50242
133101	50263
133102	50223
133113	50239
133114	50238
133115	50245
133122	50165
133127	50226
133132	50294
133137	50302
133138	50282
133139	50314
133144	50310
133145	50328
133146	50244
133147	50336
133153	50255
133154	50346
133155	50237
133160	50316
133161	50379
133162	50281

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
133163	50284
133172	50384
133173	50307
133183	50360
133184	50357
133191	50412
133192	50365
133195	50262
133232	50546
133236	50385
133237	50332
133241	50344
133242	50432
133243	50351
133248	50402
133249	50359
133250	50378
133251	50363
133256	50423
133257	50444
133260	50430
133275	50380
133283	50441
133290	50383
133297	50403
133298	50407
133305	50182
133306	50205
133307	50258
133308	50306
133309	50394
133310	50406
133311	50457
133312	50473
133315	50426
133317	50421
133318	50410
133323	50465
133324	50440
133328	50483

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
133329	50501
133333	50503
133335	50488
133339	50496
133340	50532
133343	50536
133344	50516
133350	50411
133353	50434
133354	50439
133364	50435
133365	50453
133370	50459
133371	50470
133372	50476
133376	50494
133377	50497
133386	50518
133387	50490
133388	50519
133435	50548
133440	50551
133462	50529
133463	50531
133464	50538
133471	50530
133472	50554
133481	50552
133482	50564
133483	50568
133489	50583
133490	50572
133491	50587
133548	50592
133549	50593



RECALL CAMPAIGN

REF. NO. 41
HYDRAULIC STEERING PIPE

360 MODENA, 360 SPIDER
MODEL YEAR 2003

360 CHALLENGE STRADALE
MODEL YEAR 2004

JUNE 2004

READ , INITIAL
AND PASS ON »

Service Manager	Parts Manager	Service Writer	Technician					Warranty Clerk



Ferrari North America, Inc.

June XX, 2004

Dear Ferrari Dealer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act. Ferrari S.p.A., the manufacturer of Ferrari automobiles, has decided that a defect, which relates to motor vehicle safety, exists in certain 2003 & 2004 model year Ferrari vehicles.



On certain Ferrari vehicles, the defect involves a slight oil leak in the hydraulic steering delivery pipe from the pump to the steering rack. This minor leakage may cause or could lead to a gradual reduction of the assisted steering function. Such circumstances could lead to a loss of vehicle control and could result in a crash.

The breakdown of possibly affected vehicles is as follows:

- Starting with VIN: **ZFFYT53A830130383** & Vehicle Assembly No. **48057**
- Ending with VIN: **ZFFYT53A930133549** & Vehicle Assembly No. **50593**

All affected hydraulic steering delivery pipes from the pump to the steering rack will be replaced. The operation will be performed free of charge to the vehicle owner, and will require approximately 3.5 hours for the 360 Coupes & 360 Challenge Stradales to complete. On the 360 Spyders, it will require approximately 5.1 hours to complete.

We have accordingly sent notices to all owners of the affected vehicles advising them of this problem and requesting that they contact any Authorized Ferrari Dealer for the repairs, as per the attached notification letter. Federal regulation requires that any vehicle lessor receiving this recall notice must forward a copy of this notice to the lessee within ten working days.

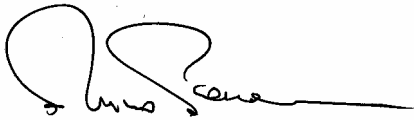
Please notice that a supply of these parts will be shipped automatically to you based on the number of vehicles in your servicing area. Any additional quantities must be ordered, as needed, from our Parts Department. Upon

transmittal of the repair under the normal warranty system, we will of course reimburse you for the parts and the labor necessary to carry out this campaign.

Obviously, if you have any of the affected vehicles in your stock, you must not sell them until you have performed the necessary repairs. If you have already sold any vehicles with the chassis numbers specified in the enclosed instructions and have not yet sent in the new owner information to Ferrari North America, Inc (FNA), please do so at once so we may notify these owners.

Thank you for your cooperation and support on this matter.

Best Regards,

A handwritten signature in black ink, appearing to read 'Enzo Francesconi', with a long horizontal line extending to the right.

Enzo Francesconi
Vice President of Technical Services
Ferrari North America, Inc.
Technical Department



Ferrari North America, Inc.

June XX, 2004

«FIRST» «LAST»
«ADD1»
«ADD2»
«CITY», «ST» «ZIP»

Serial Number: «VIN» «ASSY»



Dear Ferrari Customer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act. Ferrari S.p.A., the manufacturer of Ferrari automobiles, has decided that a defect which relates to motor vehicle safety exists in certain 2003 & 2004 model year Ferrari vehicles.

The defect involves a slight oil leak in the hydraulic steering delivery pipe from the pump to the steering rack. This minor leakage may cause or could lead to a gradual reduction of the assisted steering function. Such circumstances could lead to a loss of vehicle control and could result in a crash.

The breakdown of possibly affected vehicles is as follows:

- Starting with VIN: **ZFFYT53A830130383** & Vehicle Assembly No. **48057**
- Ending with VIN: **ZFFYT53A930133549** & Vehicle Assembly No. **50593**

All affected hydraulic steering delivery pipes from the pump to the steering rack will be replaced. The operation will be performed free of charge to the vehicle owner, and will require approximately 3.5 hours for the 360 Coupes & 360 Challenge Stradales to complete. On the 360 Spyders, it will require approximately 5.1 hours to complete. We ask you to immediately contact any Authorized Ferrari Dealer in order to arrange an inspection of your automobile and to have the corrective action performed. Please plan to leave your vehicle with the dealership to allow the dealer some flexibility for scheduling your repairs.

By the time you receive this letter, the Authorized Ferrari Dealers will have been supplied with the parts and the instructions to perform the repair. If the Dealer fails or is unable to make the necessary repairs free of charge within a reasonable time, or if you have any problem obtaining the needed repair, you should inform the national headquarters of Ferrari North America, Inc. at:

Ferrari North America, Inc.
250 Sylvan Avenue
Englewood Cliffs, NJ 07632
(201) 816-2651 (National Technical Office)

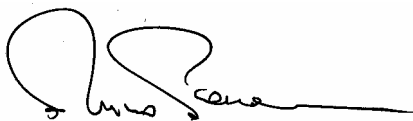
If the affected vehicle is not repaired free of charge to you and within a reasonable time, you may submit a written complaint to the Administrator, National Highway Traffic Safety Administration, (NHTSA), 400 Seventh Street, SW, Washington, DC 20590. You may also telephone the toll free Auto Safety Hotline at 888-327-4236.

You may be eligible to receive reimbursement for the cost you incurred if you already have obtained a remedy for a problem associated with the defect described in this letter. However, you still must have this corrective action performed, regardless of any previous repairs that may have been performed. Information about the reimbursement program for pre-notification repairs is provided in the enclosure to this letter. Federal regulation requires that any vehicle lesser receiving this recall notice must forward a copy of this notice to the lessee within ten working days.

If you no longer own this vehicle or your address has changed, please complete the enclosed prepaid yellow card and return it to Ferrari North America, Inc.

We urge you to comply with this notice promptly and we apologize for any inconvenience this may cause you.

Best Regards,

A handwritten signature in black ink, appearing to read 'Enzo Francesconi', with a long horizontal flourish extending to the right.

Enzo Francesconi
Vice President of Technical Services
Ferrari North America, Inc.
Technical Department

ENCLOSURE

Pre-Notification Reimbursement Program

You may be eligible for reimbursement if you previously incurred out-of-pocket costs for repairs or replacements of the Hydraulic steering delivery pipe covered by this recall campaign number 41.

1. This reimbursement program applies to the vehicles listed below and in the attached letter:
 - Model year 2003 Ferrari 360 Modenas, Spyders and MY 2004 360 Challenge Stradales with Vehicle Identification Numbers from **ZFFYT53A830130383** to **ZFFYT53A930133549**, which have a Vehicle Assembly Number from **48057** to **50593**.
2. This reimbursement program applies to repairs or replacements of the Hydraulic steering delivery pipe mentioned above.
3. This reimbursement program applies to repairs or replacements of all or part of the Hydraulic steering delivery pipe of a vehicle listed above if such repair or replacement was made at any time up to ten days following the mailing of the attached notification letter.
4. This reimbursement program does not apply to repairs or replacements that were made within the period during which the original warranty would have provided for a free repair of the problem addressed by this recall, unless (i) a franchised dealer or authorized representative of Ferrari denied warranty coverage or (ii) the repair made under the warranty did not remedy the problem. Reimbursement also will not be provided if the pre-notification remedy was not of the same type as the recall remedy provided herein, did not address the defect that led to this recall, or was not reasonably necessary to correct the defect.
5. To obtain reimbursement for pre-notification remedies, you will need to provide a receipt, which may be an original or copy, identifying the equipment replaced; and, if the pre-notification remedy was obtained at a time when the vehicle was covered under the original warranty program, documentation

indicating that the manufacturer's dealer or authorized facility either refused to remedy the problem addressed by the recall under the warranty or that the warranty repair did not correct the problem addressed by the recall. In addition, you will need to submit a written and signed claim for reimbursement that contains the information required in paragraph 6, below.

6. The claim for reimbursement should include the following information. (a) the name and address of the claimant; (b) identification of their vehicle's make, model, model year, and vehicle identification number; (c) identification of the Ferrari Campaign number (Campaign No. 41) or identification of the recall by reference to NHTSA's recall number; and (d) identification of the owner or purchaser of the vehicle at the time that the pre-notification remedy was obtained.

7. If you have any questions about the reimbursement program or need help in making a claim for reimbursement, please write or call Ferrari North America, Inc., at the following address and telephone number:

Ferrari North America, Inc.
250 Sylvan Avenue
Englewood Cliffs, NJ 07632
(201) 816-2651 (National Technical Office)

RECALL CAMPAIGN NO. 41
Ferrari 360 Modena, Spider & Challenge Stradale
“Hydraulic Steering Delivery Pipe”
RECALL CAMPAIGN OVERVIEW

INTRODUCTION: Ferrari 360 Modena, Spider & Challenge Stradale

SUBJECT: Recall Campaign No. 41

VEHICLES: Please see the attached list of affected vehicles

The list shows that the affected Ferrari vehicles with **Vehicle Chassis Numbers from 130383 to 133549** and **Vehicle Assembly Numbers from 48057 to 50593 respectively are affected by this recall.**

CONDITION: The defect involves a slight oil leak in the hydraulic steering delivery pipe from the pump to the steering rack. This minor leakage may cause or could lead to a gradual reduction of the assisted steering function. Such circumstances could lead to a loss of vehicle control and could result in a crash.

REMEDY: All affected hydraulic steering delivery pipes from the pump to the steering rack will be replaced. The operation will be performed free of charge to the vehicle owner, and will require approximately 3.5 hours for the 360 Coupes & 360 Challenge Stradales to complete. On the 360 Spyders, it will require 5.1 hours to complete.

RECALL CAMPAIGN NO. 41
Ferrari 360 Modena, Spider & Challenge Stradale
“Hydraulic Steering Delivery Pipe”
RECALL CAMPAIGN OVERVIEW

PARTS: The parts required for this repair are identified by the following part numbers:

Part No.	Description	Quantity
204081	Delivery pipe from pump to jointing (LHD)	1
209769	Delivery pipe from pump to jointing (RHD)	1
204084	Delivery pipe from jointing to steering rack (LHD)	1
204085	Delivery pipe from jointing to steering rack (RHD)	1
204080	Union	1
66212900	Protection	1
10261460	Gasket	1

LABOR: Replacement of the Hydraulic Steering Pipe

Coupe and Challenge Stradale Model

- Cost code.....24
- Campaign number41
- Component code510089
- Problem code01
- Labor Operation code5100898 (3.5 hrs)

Spider Model

- Cost code.....24
- Campaign number41
- Component code510089
- Problem code01
- Labor Operation code5100899 (5.1 hrs)

REIMBURSEMENT: Upon receipt of a warranty claim via MODIS CS

RECALL CAMPAIGN NO. 41

**Ferrari 360 Modenas, 360 Modenas F1, 360 Spiders,
360 Spiders F1 & 360 Challenge Stradales**

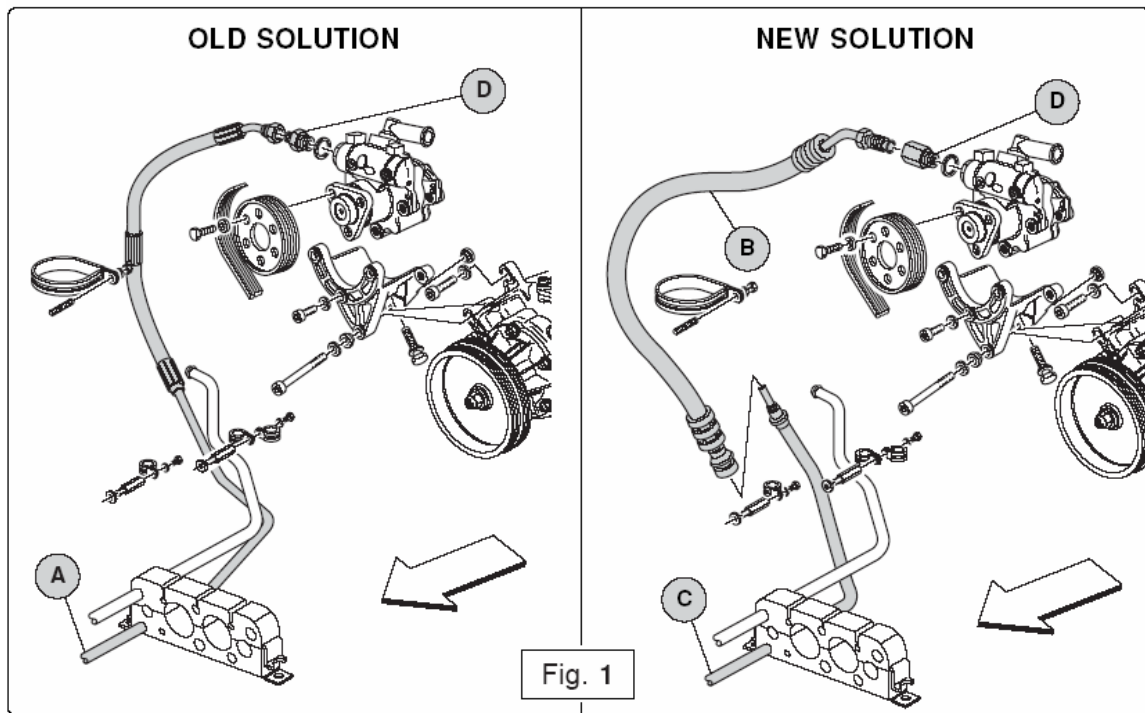
“Hydraulic Steering Delivery Pipe from Pump to Rack”

Technical Instructions

Ferrari S.p.A found a problem in the pipe in question. The slight oil leak malfunction may occur in the hydraulic steering delivery pipe which could lead to a gradual reduction of the assisted steering function. Therefore, Ferrari S.p.A informed Ferrari North America, Inc. about the potentially involved vehicles which should be serviced by replacing the components listed below.

The new design proposes the splitting of the hydraulic steering delivery pipe which runs from the pump to the steering rack (part **A** in the old design, Fig. **1**) into two parts:

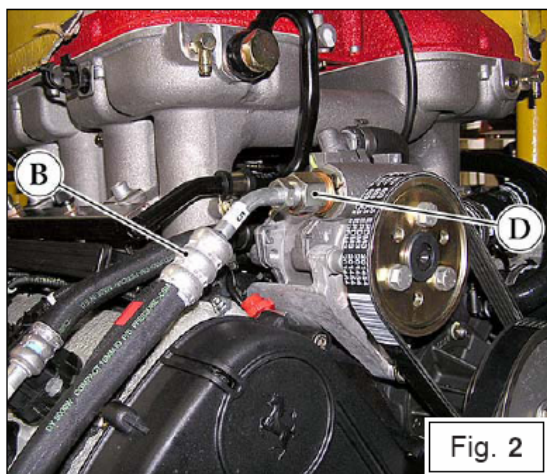
- Part **B** (new solution, Fig. **1**) made of a hosing, which runs from the pump to the under-floor **C**.
- Part **C** (new solution, Fig. **1**) made of a rigid piping, which runs across the entire under-floor.



Intervention procedures

The table below shows the parts involved in the modification and the related codes.

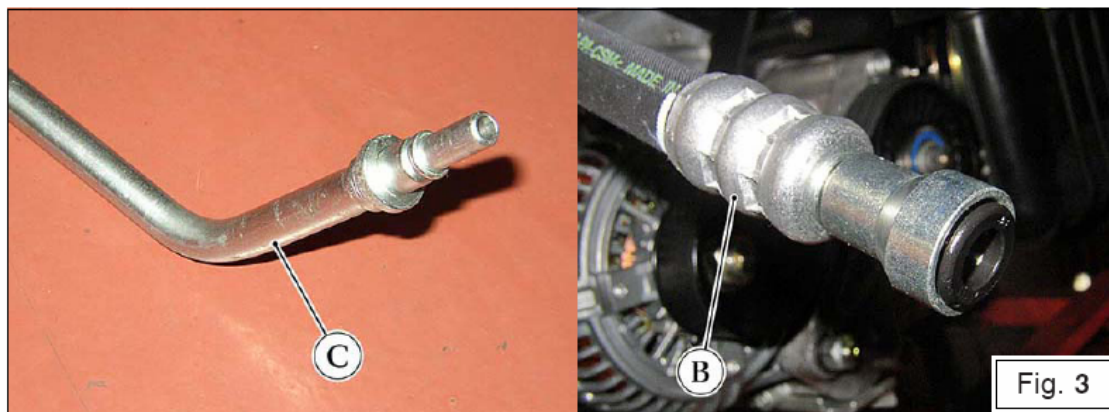
Ref.	Code	Description	Q.ty
Old solution			
A	185514	Cpl. delivery pipe from pump to steering rack (LHD)	1
	185515	Cpl. delivery pipe from pump to steering rack (RHD)	1
D	174091	Union	1
New solution			
B	204081	Delivery pipe from pump to jointing (LHD)	1
	209769	Delivery pipe from pump to jointing (RHD)	1
C	204084	Delivery pipe from jointing to steering rack (LHD)	1
	204085	Delivery pipe from jointing to steering rack (RHD)	1
D	204080	Union	1
E	66212900	Protection	1
F	10261460	Gasket	1



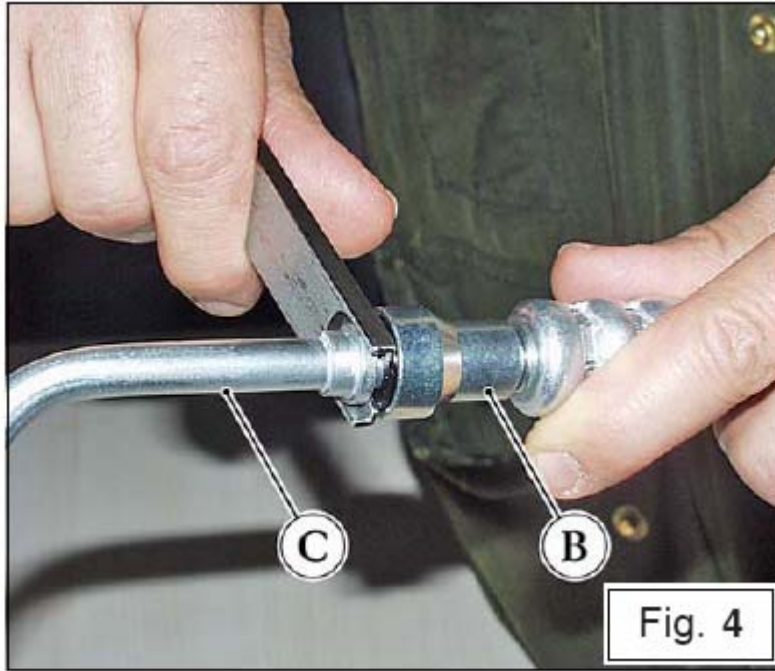
In addition to the pipe in question, the union (**D**), which has a female section housing the male section of the pipe (**B**), will also be replaced (Fig. 2).

Before carrying out this service, carefully clean the pipes and hoses supplied.

The pipe and hose supplied (**B** and **C**) can be connected via a quick coupling, which has a male section on the rigid pipe **C**, and female section with a seal on the hose **B** (Fig. 3).



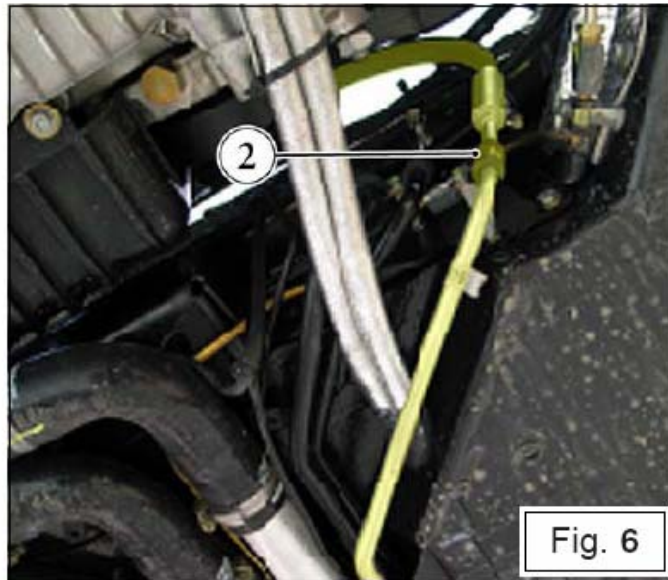
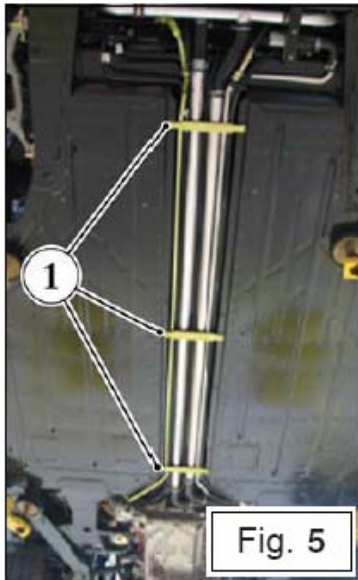
In order to separate the two sections of the pipe, you must use tool **AV 6038**, shown in the figure 4. The tool P/N **95976038** can be order from the Parts Department.



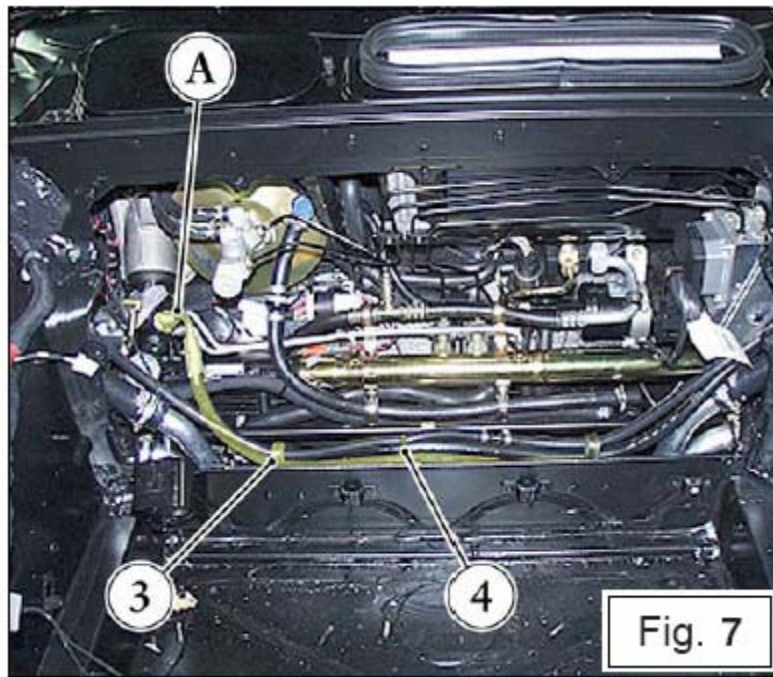
Below please find an explanation of the procedure for replacing the original pipe (A) with the new pipes (B) and (C):

- Remove the rear central and front sections of the under-floor (see **M 2.12** of the service manual).
- Remove the rear movable guard and the waterproof canvas from the luggage compartment as described in section **M 3.06** of the service manual.
- Access to the hydraulic steering delivery pipe union on the pump in the **360 Spider model** is only possible through the engine inspection hatch. Remove the engine inspection hatch following the instructions laid out in section **M 3.05** of the service manual.
- Remove the 3 plates shown as (1) in Figure 5. These plates are in position with the supports retaining the under floor pipes. Please undo the relative fastening screws.

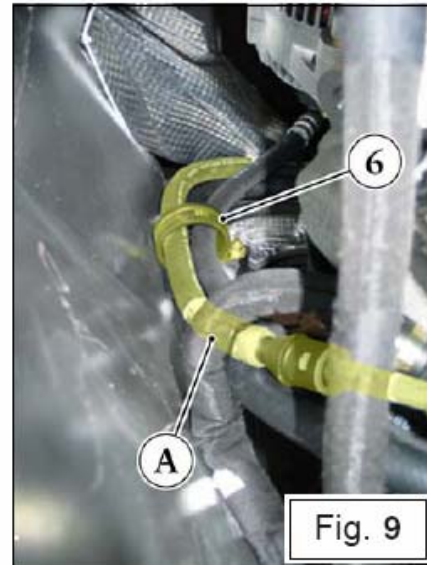
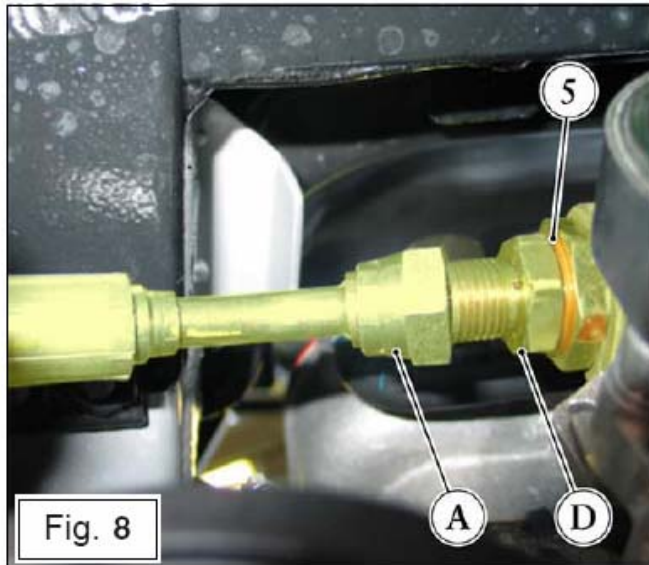
- Detach the sheathed bracket (2) from the bodywork and slide the hydraulic steering delivery pipe (A) (Fig.1) out of the under-floor supports (Fig. 6).



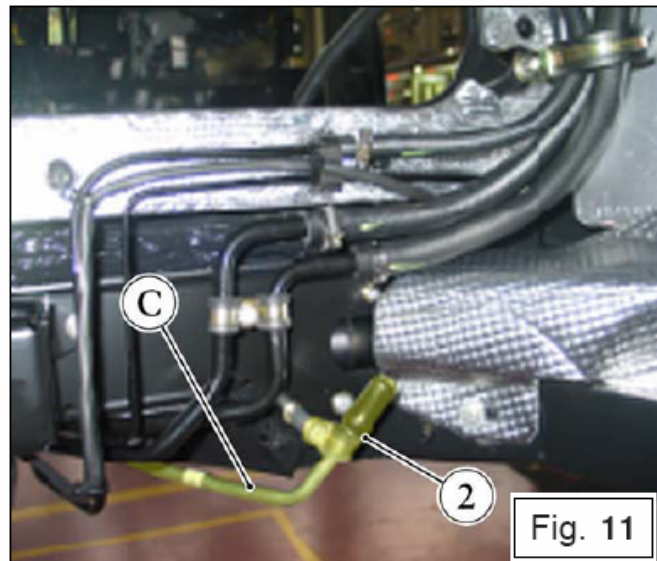
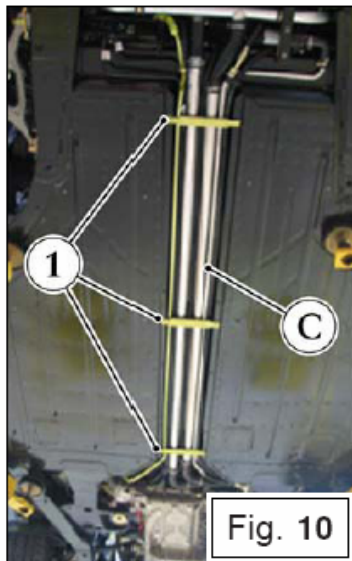
- Place a pan underneath the vehicle in order to salvage the oil that leaks out of the lines.
- Detach the sheathed bracket (3) supporting the pipes and cut the tear clamp (4) (Fig. 7)
- Detach the hydraulic union (A) from the steering rack (Fig. 7).



- Suitably protect the surrounding areas with rags and detach the delivery pipe union (A) from the hydraulic steering pump.
- Unscrew the union (D) with the seal (5) and remove them from the pump (Fig. 8)
- After loosening the hydraulic steering delivery pipe (A), slide it out of the sheathed bracket (6) (Fig. 9).
- Remove the hydraulic steering delivery pipe from the under-floor supports completely.

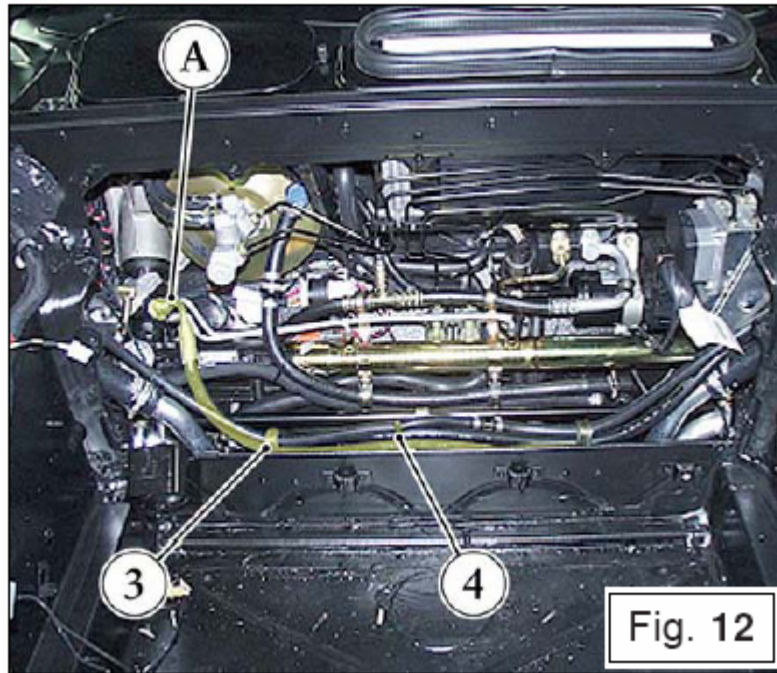


- Fit the new delivery pipe from the jointing to the steering rack (C) into the under-floor supports and refit the 3 original plates (1) (Fig. 10).
- Fasten the rear end of the pipe (C) to the sheathed bracket (2), removed earlier (Fig.11)



- Fasten the union on the delivery pipe (C) onto the steering rack, positioning it as shown in the figure and tightening it to a torque of 35 Nm (Fig. 11).

- Fasten the pipe to the bodywork and to the radiator water draining pipe, refitting the sheathed clamp (3) removed earlier.
- Fit a tear clamp (4) at the point indicated in the figure, without over tightening it.



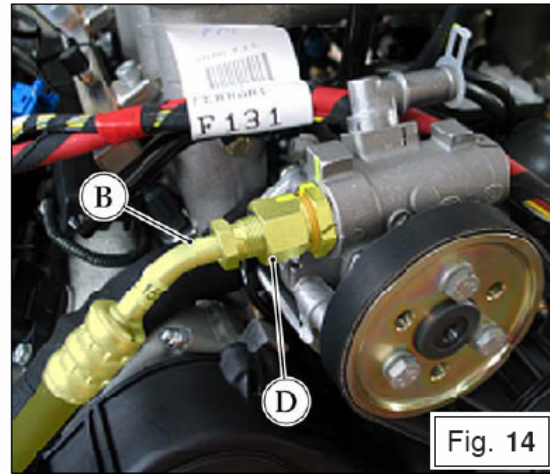
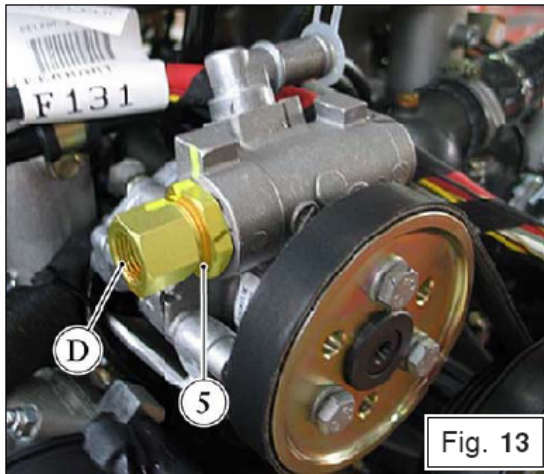
- After cleaning and degreasing the gluing surface, fit a new waterproof canvas on the luggage compartment panel and refit the movable panel removed earlier, following the instructions given for these operations in section **M 3.06** of the service manual (Fig. 12).

- Fit the new union (D) on the pump, inserting the new seal (5) supplied with the kit.

Note: The new seal is also described as a gasket in the part list (part number 10261460).

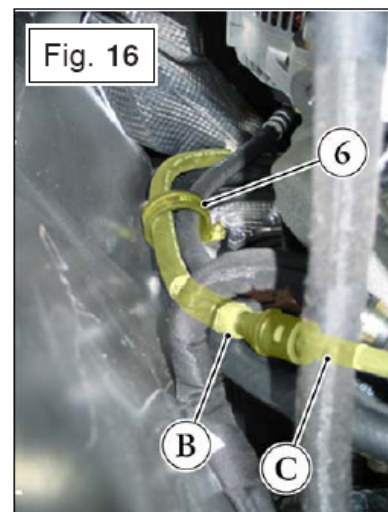
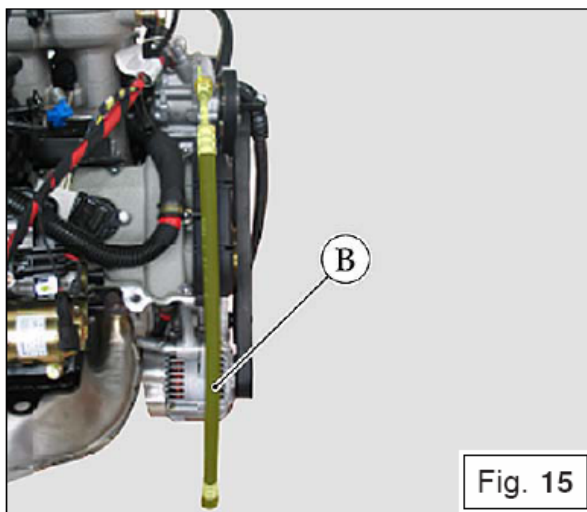
- Lock the union (D) on the pump to a torque of **40 Nm** (Fig. 13).
- Fit the new delivery pipe leading from the pump to the jointing (B) on the union (D) and position it in a way that the pipe is in a vertical position (Fig. 14).

- Lock the pipe (B) on the union (D) to a torque of **35 Nm**, contrasting it with the union (Fig. 15).



NOTE: The pipe (B) can be locked only once. Should it need to be unscrewed, it is absolutely essential that the pipe (B) is replaced as it cannot be locked on the union (D) again.

- Fit the pipe (B) into the sheathed bracket (6) and secure the latter on the bodywork (Fig. 16).



- Couple the quick coupling ends of the pipes (B) and (C) (Fig. 16).
- Proceed by refitting the structures removed for the operation, then bleed the system and top the oil up to level, as described in section **E 3.02** of the service manual.

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
130383	48057
130553	47931
130664	47848
130669	47850
130678	47916
130679	47854
130684	47884
130685	47893
130717	48150
130724	47849
130746	47887
130752	47904
130753	47952
130759	47913
130760	47925
130763	47963
130764	47944
130783	47867
130785	47872
130786	47875
130793	47903
130804	48166
130811	47930
130859	47926
130860	47932
130868	47964
130869	47955
130870	47974
130879	47983
130880	47992
130895	48007
130896	48008
130897	47973
130898	48006
130904	48010
130905	48030
130906	48012
130907	47999
130980	48029
130981	48052
130985	48075

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
130991	48058
130992	48098
130998	48096
130999	48100
131029	48047
131035	48050
131036	48059
131044	48078
131045	48077
131051	48103
131052	48086
131059	48109
131067	48112
131068	48147
131106	48161
131107	48118
131114	48168
131115	48177
131122	48202
131123	48184
131124	48187
131131	48205
131132	48207
131138	48225
131139	48222
131146	48253
131147	48230
131189	48256
131195	48297
131196	48257
131197	48269
131203	48313
131204	48270
131210	48279
131211	48290
131219	48332
131220	48300
131224	48314
131225	48316
131228	48334

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131230	48350
131253	48382
131254	48365
131260	48400
131267	48394
131268	48434
131284	48392
131329	48428
131330	48449
131335	48528
131343	48463
131344	48482
131349	48542
131353	48509
131360	48444
131361	48442
131362	48460
131366	48464
131367	48450
131368	48462
131374	48483
131375	48470
131376	48471
131383	48489
131384	48502
131385	48486
131392	48521
131393	48525
131394	48545
131395	48507
131400	48524
131405	48550
131406	48553
131417	48561
131423	48585
131428	48508
131429	48547
131430	48558
131431	48511
131439	48560

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131440	48532
131441	48580
131446	48583
131447	48586
131448	48554
131455	48588
131456	48587
131457	48555
131458	48563
131464	48622
131465	48623
131466	48642
131467	48599
131485	48630
131491	48739
131499	48649
131500	48644
131501	48601
131506	48651
131507	48661
131508	48683
131509	48607
131510	48605
131515	48686
131516	48697
131517	48628
131523	48698
131524	48699
131525	48701
131526	48631
131572	48626
131573	48828
131582	48783
131583	48650
131587	48681
131599	48746
131606	48764
131607	48668
131616	48782
131617	48678

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131624	48718
131641	48848
131644	48700
131645	48824
131650	48780
131654	48860
131655	48836
131663	48927
131667	48875
131671	48745
131675	48818
131676	48787
131677	48750
131684	48822
131685	48879
131686	48802
131687	48820
131694	48837
131695	48846
131696	48835
131697	48827
131703	48861
131704	48842
131705	48859
131713	48864
131714	48877
131715	48922
131719	48889
131720	48893
131721	48923
131786	48891
131791	48906
131796	48937
131797	48914
131800	48981
131801	48940
131802	48944
131805	48985
131806	48989
131816	49021

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131817	49033
131820	48911
131826	48904
131827	48921
131828	48915
131834	48931
131835	48934
131845	48991
131846	48946
131852	48949
131853	48987
131854	48988
131855	48982
131862	48992
131863	49016
131864	49019
131870	49035
131871	49018
131872	49039
131888	48941
131894	49034
131895	49040
131896	49056
131897	49037
131898	49072
131910	49058
131911	49074
131912	49104
131927	49075
131928	49083
131938	49014
131939	49159
131940	49099
131941	49013
131946	49098
131947	49123
131948	49119
131949	49096
131959	49118
131960	49146

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
131999	49117
132000	49162
132001	49163
132021	49116
132022	49134
132030	49177
132067	49240
132074	49277
132077	49228
132083	49293
132084	49289
132089	49175
132090	49185
132098	49206
132105	49221
132106	49212
132115	49243
132121	49271
132122	49272
132133	49276
132134	49282
132135	49278
132177	49285
132179	49355
132187	49341
132208	49291
132215	49328
132216	49327
132217	49331
132225	49345
132226	49348
132227	49343
132236	49354
132237	49353
132243	49375
132244	49373
132272	49444
132276	49399
132277	49389
132278	49400

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132286	49432
132295	49410
132303	49467
132388	49423
132394	49448
132401	49456
132405	49519
132411	49468
132413	49424
132420	49479
132421	49495
132430	49470
132437	49632
132445	49539
132446	49530
132447	49555
132453	49562
132454	49540
132455	49544
132459	49472
132460	49502
132461	49516
132462	49541
132463	49582
132464	49621
132468	49609
132471	49651
132477	49642
132489	49573
132490	49579
132498	49577
132499	49595
132500	49630
132506	49606
132507	49608
132508	49607
132509	49611
132510	49697
132513	49612
132514	49643

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132523	49650
132524	49633
132525	50356
132572	49678
132573	49813
132578	49700
132583	49724
132584	49764
132588	49776
132593	49787
132599	49665
132600	49669
132601	49677
132608	49708
132609	49672
132610	49695
132611	49769
132617	49712
132618	49698
132619	49707
132626	49770
132627	49710
132628	49733
132633	49729
132634	49743
132671	49794
132672	49791
132673	49807
132674	50161
132680	49826
132685	49881
132686	49909
132688	49751
132689	49765
132690	49749
132691	49775
132695	49790
132696	49827
132697	49785
132698	49793

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132701	49806
132702	49811
132703	49836
132712	49833
132713	49831
132719	49828
132720	49867
132721	49850
132722	49866
132775	49872
132776	49895
132777	49946
132781	49949
132787	49938
132788	49957
132799	49873
132800	49875
132801	49889
132802	49885
132808	49904
132809	49886
132818	49907
132819	49910
132820	49911
132821	49923
132822	49982
132828	49929
132829	49943
132830	49959
132831	49956
132836	49988
132837	50000
132838	49965
132842	50046
132848	50029
132849	50061
132853	50075
132854	50083
132858	50091
132859	50111

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
132860	50116
132863	49966
132864	49999
132865	50026
132866	50045
132875	49986
132876	50030
132877	50041
132883	50005
132884	50006
132885	50017
132886	50040
132887	50039
132888	50143
132895	50022
132896	50044
132897	50063
132898	50062
132905	50066
132906	50070
132907	50088
132970	50120
132971	50103
132977	50130
132978	50169
132984	50081
132985	50086
132986	50093
132991	50089
132992	50106
132993	50110
132994	50187
133002	50114
133003	50118
133004	50121
133005	50119
133012	50123
133013	50140
133014	50160
133015	50144

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
133046	50141
133047	50191
133052	50201
133060	50222
133066	50248
133072	50163
133073	50170
133074	50171
133075	50168
133082	50203
133083	50183
133084	50190
133085	50185
133089	50219
133090	50193
133091	50208
133092	50218
133099	50228
133100	50242
133101	50263
133102	50223
133113	50239
133114	50238
133115	50245
133122	50165
133127	50226
133132	50294
133137	50302
133138	50282
133139	50314
133144	50310
133145	50328
133146	50244
133147	50336
133153	50255
133154	50346
133155	50237
133160	50316
133161	50379
133162	50281

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
133163	50284
133172	50384
133173	50307
133183	50360
133184	50357
133191	50412
133192	50365
133195	50262
133232	50546
133236	50385
133237	50332
133241	50344
133242	50432
133243	50351
133248	50402
133249	50359
133250	50378
133251	50363
133256	50423
133257	50444
133260	50430
133275	50380
133283	50441
133290	50383
133297	50403
133298	50407
133305	50182
133306	50205
133307	50258
133308	50306
133309	50394
133310	50406
133311	50457
133312	50473
133315	50426
133317	50421
133318	50410
133323	50465
133324	50440
133328	50483

FERRARI NORTH AMERICA, INC.

Recall Campaign No. 41 Hydraulic Steering Delivery Pipe

<u>Chassis No.</u>	<u>Assembly No.</u>
133329	50501
133333	50503
133335	50488
133339	50496
133340	50532
133343	50536
133344	50516
133350	50411
133353	50434
133354	50439
133364	50435
133365	50453
133370	50459
133371	50470
133372	50476
133376	50494
133377	50497
133386	50518
133387	50490
133388	50519
133435	50548
133440	50551
133462	50529
133463	50531
133464	50538
133471	50530
133472	50554
133481	50552
133482	50564
133483	50568
133489	50583
133490	50572
133491	50587
133548	50592
133549	50593



Service Bulletin

SB 00-12

8-5-82

SUBJECT: High Altitude Performance Adjustment Procedure
VEHICLES: All USA Models MY 1968-1980

GENERAL INFORMATION:

The Environmental Protection Agency has issued a regulation providing for the carburetor adjustment of vehicles used principally at high altitude in order to improve the Emission Control Performances. All USA vehicles MY 1968 through 1980 operated at high altitude locations, as identified in Table 1 of present bulletin, should have carburetion adjusted according to the specification here shown in Table 2, by following the same tune up requirements and procedures established in the related Workshop and Owner's Manuals.

After completion of Fast Idle/Idle r.p.m. and CO adjustments, the label, here shown in Table 3, should be affixed to the vehicle in an open location, in proximity of the original Emission Control Information Label.

An initial lot of labels is being shipped directly to you for your use and convenience. Should you need any additional ones, please contact any of the Ferrari North America main offices.

TABLE I

Counties Designated by E.P.A. as High Altitude Locations:

Counties Located Substantially Above
1,219 Meters (4,000 Feet) in Elevation

State of Arizona

Apache	Navajo
Cochise	Yavapai
Coconino	

State of Colorado

Adams	Kit Carson
Alamosa	Lake
Arapahoe	La Plata
Archuleta	Larimer
Boulder	Las Animas
Chaffee	Lincoln
Cheyenne	Mesa
Clear Creek	Mineral
Conejos	Moffat
Costilla	Montezuma
Crowley	Montrose
Custer	Morgan
Delta	Otero
Denver	Ouray
Dolores	Park
Douglas	Pitkin
Eagle	Pueblo
Elbert	Rio Blanco
El Paso	Rio Grande
Fremont	Routt
Garfield	Saguache
Gilpin	San Juan
Grand	San Miguel
Gunnison	Summit
Hinsdale	Teller
Huerfano	Washington
Jackson	Weld
Jefferson	

State of Idaho

Bannock	Franklin
Bear Lake	Fremont
Bingham	Jefferson
Blaine	Lemhi
Bonneville	Madison

State of Nevada

Carson City	Lyon
Douglas	Mineral
Elko	Nye
Esmeralda	Pershing
Eureka	Storey
Humboldt	Washoe
Lander	White Pine
Lincoln	

State of New Mexico

Bernalillo	Mora
Catron	Rio Arriba
Colfax	Roosevelt
Curry	Sandoval
De Baca	San Juan
Grant	San Miguel
Guadalupe	Santa Fe
Harding	Sierra
Hidalgo	Socorro
Lincoln	Taos
Los Alamos	Torrance
Luna	Union
McKinley	Valencia
Otero	

State of Oregon

Harney	Klamath
Lake	

State of Texas

Jeff Davis	Parmer
Hudspeth	

State of Utah

Beaver	Morgan
Box Elder	Piute
Cache	Rich
Carbon	Salt Lake
Daggett	San Juan
Davis	Sanpete
Duchesne	Sevier
Emery	Summit

Butte	Minidoka
Camas	Oneida
Caribou	Power
Cassia	Teton
Clark	Valley
Custer	

State of Montana

Beaverhead	Madison
Deer Lodge	Meagher
Gallatin	Park
Jefferson	Silver Bow
Judith Basin	Wheatland
Powell	

State of Nebraska

Banner	Kimball
Cheyenne	Sioux

Garfield	Tooele
Grand	Uintah
Iron	Utah
Juab	Wasatch
Kane	Wayne
Millard	Weber

State of Wyoming

Albany	Natrona
Campbell	Niobrara
Carbon	Park
Converse	Platte
Fremont	Sublette
Goshen	Sweetwater
Hot Springs	Teton
Johnson	Uinta
Laramie	Washakie
Lincoln	Weston

TABLE II
EMISSION CONTROL SYSTEM
(See Footnotes)

MODEL YEAR	MODELS	ADJUSTMENT SPECIFICATIONS FOR HIGH ALTITUDE EMISSION CONTROL SYSTEM (See Footnotes)	ADJUSTMENT SPECIFICATIONS FOR HIGH ALTITUDE		
			IDLE RPM	FAST IDLE RPM	IDLE CO ₂
1968	365 GT 2+2	1,2,3	800 ± 850	1300 ± 100	0.3 - 0.8
	365 GT 2+2	1,2,3	800 - 850	1300 ± 100	0.3 - 0.8
	365 GTB 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
1970	365 GT 2+2	1,2,3	800 - 850	1300 ± 100	0.3 - 0.8
	365 GTB 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
	Dino 246 GT	1,2,3	1000 ± 50	1600 ± 200	1.1 ± 0.2
1971	365 GT 2+2	1,2,3	800 - 850	1300 ± 100	0.3 - 0.8
	365 GTB 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
	365 GTC 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
1972	Dino 246 GT	1,2,3	1000 ± 50	1600 ± 200	1.1 ± 0.2
	365 GT 2+2	1,2,3	800 - 850	1300 ± 100	0.3 - 0.8
	365 GTB 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
1973	365 GTC 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
	Dino 246 GT	1,2,3	1000 ± 50	1600 ± 200	1.1 ± 0.2
	365 GTB 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
1974	365 GTC 4	1,2,3	950 ± 50	2400 ± 100	0.6 - 0.9
	Dino 246 GT	1,2,3	1000 ± 50	1600 ± 200	1.1 ± 0.2
	Dino 246 GT	1,2,3	1000 ± 50	1600 ± 200	1.1 - 0.2
1975	Dino 308 GT 4	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
	Dino 308 GT 4	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
	308 GTB	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
1976	308 GTS	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
	Dino 308 GT 4	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
	308 GTB	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
1977	308 GTS	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
	Dino 308 GT 4	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
	308 GTB	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
1978	308 GTS	1,2,3,4	1000 ± 200	3100 ± 300	2.0 ± 1.5
	Dino 308 GT 4	1,2,3,5	1000 ± 200	3100 ± 200	6.0 ± 1.0
	308 GTB	1,2,3,5	1000 ± 200	3100 ± 200	6.0 ± 1.0
1979	308 GTS	1,2,3,5	1000 ± 200	3100 ± 200	6.0 ± 1.0
	Dino 308 GT 4	1,2,3,5	1000 ± 200	3100 ± 200	6.0 ± 1.0
	308 GTB	1,2,3,5	1000 ± 200	3100 ± 200	6.0 ± 1.0
1980	308 GTS	1,2,3,5	1000 ± 200	3100 ± 200	6.0 ± 1.0
	Dino 308 GT 4	1,2,3,6,7,8	1000 ± 100	Automatic	1.0 ± 0.2
	308 GTB	1,2,3,6,7,8	1000 ± 100	Automatic	1.0 ± 0.2

NOTES:

- 1 = Pump Air Injection
- 2 = Fast Idle
- 3 = Ignition Retard
- 4 = Thermal Reactor
- 5 = Oxidation Catalyst
- 6 = Fuel Injection
- 7 = 3-way + Oxidation Catalyst
- 8 = EGR

TABLE III

High Altitude Performance Adjustment Label

Ferrari	VEHICLE EMISSION CONTROL INFORMATION UPDATE
THIS VEHICLE HAS BEEN ADJUSTED TO IMPROVE EMISSION CONTROL PERFORMANCE WHEN OPERATED AT HIGH ALTITUDE	
ADJUSTMENT INSTRUCTIONS:	
THIS VEHICLE SHOULD BE TUNED ACCORDING TO THE AP- PLICABLE ADJUSTMENT SPECS FOR IDLE SPEED, IDLE CO % AND FAST IDLE SPEED CONTAINED ON THE "VEHICLE EMISSION CONTROL INFORMATION" LABEL ORIGINALLY INSTALLED ON THIS VEHICLE.	

Ferrari



Service Bulletin

SB 00-16
9/26/84

SUBJECT: ADDITIVES FOR OIL & GASOLINE EMPLOYED ON FERRARI CARS
VEHICLES: 8 & 12 Cylinder Models

SERVICE INFORMATION:

We according to our periodical technical inspections, and surveys on engines and transmissions overhauled at the factory, we have noticed the use of some additives that have not been approved or recommended by the Ferrari Factory.

Considering that these products could be more harmful and useful, we peremptory invite you not to use any additive or similar product if not approved or recommended by Ferrari Factory.

Above advice is especially valid if the car is under warranty.

SERVICE BULLETIN No 00-25

DATE: 6/15/88

SUBJECT: NEW AGIP SINT 2000 10W 40 ENGINE OIL
VEHICLES: ALL

Starting from cars with C.N. 76966, the new **AGIP SINT 2000 10W 40** oil is being used for engine lubrication, replacing the SINT 2000 10W 50 type which Agip no longer produces.

You may use up the Agip Sint 2000 10W 50 oil you have in stock.

The table below provides a list of Agip products used in our vehicles with the corresponding quality levels; it also shows the minimum quality levels required of other products which may be used **only** when Agip lubricants are not available.

AGIP PRODUCTS	AGIP PRODUCT QUALITY LEVELS	MINIMUM CORRESPONDING QUALITY LEVELS	
		EUROPE	OTHER COUNTRIES
AGIP SINT 2000	SAE 10W/40 API SF/CD CCMC G3-D1-D2-PD3 MIL-L-46152-C LEVEL	SAE 10W/40 API SF/CD CCMC G3-D1	SAE 10W/40 SAE 15W/40 SAE 15W/50 API SF/CC
AGIP ROTRA MP	SAE 80W/90 API GL-5 MIL-L-2105-C	SAE 80W/90 API GL-5 MIL-L-2105-C	SAE 80W/90 API GL-5
AGIP ROTRA SX	SAE 80W/90 API GL-5 MIL-2105-C	SAE 75W/90 API GL-5 MIL-L-2105-L	SAE 75W/90 SAE 80W/90 API GL-5
AGIP DEXTRON II	GM 6137 M ZF 7006 050 157	GM 6137 M ZF 7006 050 157	GM 6137 M
AGIP BRAKE FLUID DOT4	FMVSS DOT-3/DOT-4 SAE J-1703	FMVSS DOT-3/DOT-4 SAE J-1703	FMVSS DOT-4
AGIP TER 60	DIN 51503 KA/KC 68	DIN 51503 KA/KC 68	CARRIER PP-3636
AGIP OSO 32	ISO HM 32 DIN51524 HLP DENISON HF-2	ISO HM 32 DIN 51524 HLP	ISO HM 32 DENISON HF2
AGIP ANTIFREEZE	BS 3151 Type B	BS 3151 Type B	BS 3151 Type B
AGIP ATF DEXTRON	GM 6032 M ZF 7006 050 157	GM 6032 M ZF 7006 050 157	GM 6032 M



Service Bulletin

SB 10-4
7-9-81



SUBJECT: REPLACEMENT ENGINE CYLINDER HEAD GASKETS
VEHICLES: ALL MODELS

PARTS

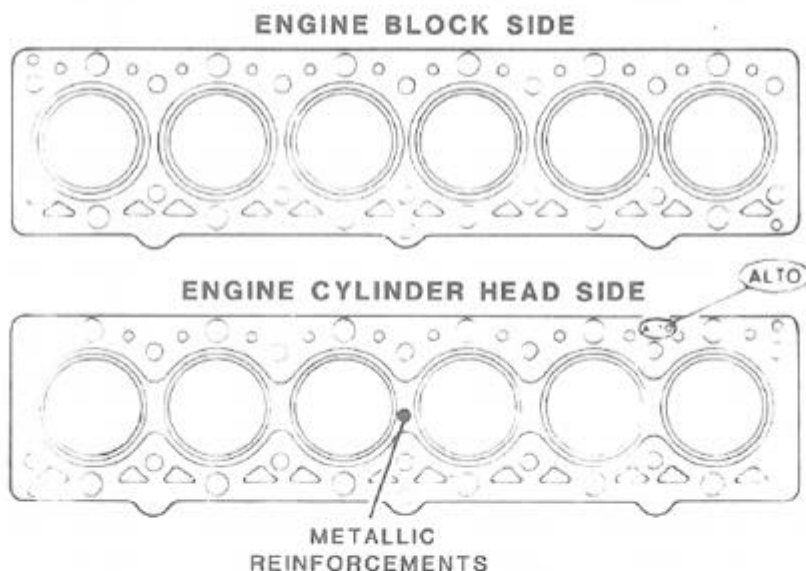
INFORMATION: All replacement engine cylinder head gaskets presently in your parts inventory must be inspected for a possible manufacturing defect.

Upon inspection, correctly manufactured gaskets can be identified as follows:

- The metallic reinforcements between the cylinder liners must be located on the cylinder head side of the gasket, identified by the word "ALTO" stamped in the gasket. See example below.

If gaskets are not manufactured as described above, they must be removed from your inventory immediately and returned to Ferrari North America for full credit, using an FNA AFA parts return form.

EXAMPLE OF A CORRECT HEAD GASKET



READ, INITIAL and PASS ON

SERVICE MANAGER	PARTS MANAGER	SERVICE WRITER	TECHNICAN



Service Bulletin

SB14-2
7-16-81



SUBJECT: AIR/FUEL MIXTURE ADJUSTMENT
VEHICLES: ALL FUEL INJECTED MODELS

GENERAL INFORMATION:

Starting with 1981 models, a new Federal law prohibits unauthorized adjustments or "tampering" of the CO (Carbon Monoxide) emissions prescribed by the E.P.A.

In accordance with this new law, the recess in the fuel metering unit for the air/fuel mixture adjustment screw has been sealed with an aluminum plug. (See diagram on reverse side of this page).

The proper CO setting is made by the Ferrari factory prior to vehicle transit to the United States.

Important: Routine adjustments are not permitted.

SERVICE INFORMATION:

If any major engine repairs or replacement of the main fuel injection system components have been performed on the vehicle, the CO emissions from the vehicle must be tested and be within the following specification prior to the vehicles release from the dealership.

Required CO Setting - 0.8% to 1.2% (air pump belt disconnected)

If the reading is not within the above specifications, the air/fuel mixture must be adjusted to conform with Federal regulation. This can be accomplished by removing the aluminum plug from the fuel metering unit. (Removal procedure is printed on the reverse side of this page).

After the adjustment has been completed, a replacement aluminum plug, Part No. 117242, MUST BE REINSTALLED in the appropriate recess of the fuel metering unit.

VERY IMPORTANT:

It is ILLEGAL and in violation of Federal Law to release vehicles from the dealership without the proper "CO" adjustment and replacement aluminum plug.

PARTS INFORMATION:	Description	Part No.
	Replacement aluminum plug	117242

OVER

READ, INITIAL and PASS ON

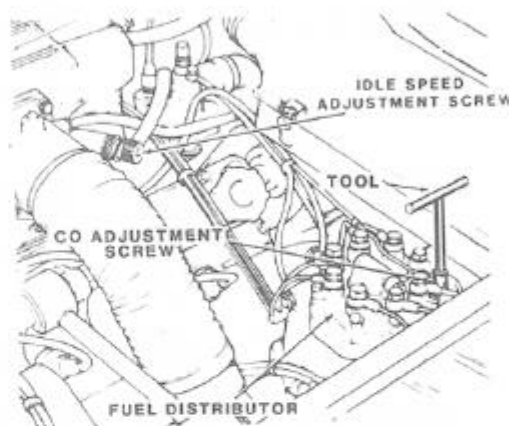
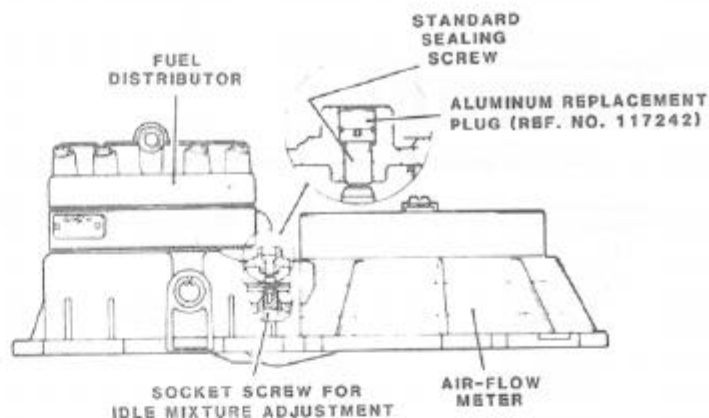
SERVICE MANAGER	PARTS MANAGER	SERVICE WRITER	TECHNICAN

- Remove air cleaner.
- Center punch aluminum plug sealing air/fuel mixture adjustment screw.
- Drill a 2.5mm (3/32") hole, approximately 3.5 to 4mm (9/64-5/32) deep, in the center of the plug.

NOTE: Clean all metal shavings from area.

- Screw in a 3mm (1/8") sheet metal screw into drilled hole.
- Grasping the screw with pliers, remove the plug.
- Adjust air/fuel mixture screw to proper CO setting.
Required CO Setting - 0.8% to 1.2%
(air pump belt disconnected)
- Seat replacement plug, Part No. 117242 in recess of fuel metering unit. Using a hammer drive plug in flush with unit.

CAUTION: Do not release the vehicle from the dealership without installing the replacement plug. Failure to install the plug may be in violation of Federal law.



Service Bulletin

SB 16-1
2-8-79



SUBJECT: OIL FILTER
VEHICLES: ALL MODELS

CONDITION: Wrong type of oil filter being used as replacement. The Fram 2804 oil filter does not contain a stand pipe. This allows the oil in the filter to drain back to the sump with the engine stopped and causes a delay in the lubrication of the cam shafts resulting in damage.

PARTS

INFORMATION: The recommended replacement oil filter contains the stand pipe to prevent the oil from draining with the engine stopped.
The Factory Recommended oil filters are:

- SAVARA PH-2804-1
- FRAM PH-2804-1
- LUCAS G085

WARRANTY

INFORMATION: The use of an unauthorized replacement oil filter could cause damage to the engine which is not covered by the warranty.

SERVICE BULLETIN No **30-23**DATE: 03/07/94**SUBJECT: SPARE PARTS CATALOG UPDATE**
VEHICLES: 512 TR

Please find the 2 parts catalog pages to update your 512TR parts catalog 741/92 Tav. 27 and 30 and a technical description of the following:

Tav. 30: Differential assembly**Tav. 30: Flanged screw**

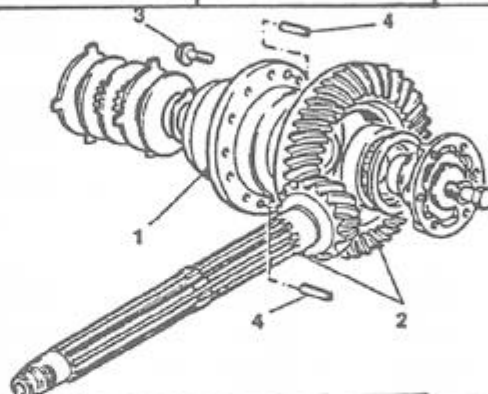
SERVICE BULLETIN No 30-23

PAGE: 2

Reference Tav. 30: Below is a summary of the modifications introduced to the differential assembly:

1. The complete differential assembly incorporates a new forged housing rather than the previous welded type and incorporates two holes for the locating dowels of the crown gear.
2. The crown gear mounting to the differential assembly is accomplished by means of bolts having a thread size of M10X1.
3. Two locating dowels are now utilized for mounting of the crown gear to the differential assembly.
4. The introduction of different crown gear bolts having a different thread size of M10X1.

Starting From:	Description of modification	Differential	Crown end fastening bolts	Centering dowels
	From gearbox number	1370	1513	1513



REPLACED PARTS				NEW PARTS			
Ref.	Qty.	Part Number	Description	Ref.	Qty.	Part Number	Description
1	1	146769	Differential complete	1	1	155099	Differential complete
2	1	110016	Crown and pinion complete	2	1	159069	Crown and pinion complete
3	12	103875	Fastening bolts M10X1.25 for crown gear PN 110016	3	12	153710	Fastening bolts M10X1 for crown gear PN 159069
—	—	—	—	4	2	13916370	Centering dowels

Instructions for installing the crown gear on the differential assembly, proceed as follows:

1. Clean any grease or oil from the threads of the fastening bolts and also the threads in the crown gear.
2. Apply a light coating of Loctite 640 (PN 155208) to the threads of the fastening bolts.
3. Tighten the crown gear fastening bolts (PN 153710 - M10X1) to a torque of 60 Nm; then tighten an additional 50° turn utilizing the special tool PN 95970034.

Note: The new differential assembly (PN 155099) can also be used on Testarossa models (after exhaustion of the previous type in your stock). Also the new type differential assembly can be used on other models that utilized the previous type differential assembly PN 103262.



SERVICE BULLETIN No **30-23**PAGE: 3

Reference Tav. 30: Below is a summary of the new screw (PN 155750) that has been introduced for securing the crown gear (PN 110016) to the differential in place of the old screw (PN 103875). This was introduced as a technical improvement.

Valid until:	Model	512 TR		
	Gearbox number	1512		



REPLACED PARTS			NEW PARTS		
Qty.	Part Number	Description	Qty.	Part Number	Description
12	103875	Crown gear fixing screw (M10X1.25) for crown gear (PN 110016)	12	155750	Crown gear fixing screw (M10X1.25) for crown gear (PN 110016)

Assembly instructions:

1. Degrease threads and faces.
2. Apply Loctite 640 (PN 155208) to the threads.
3. Tighten the crown gear fastening bolts (PN 155750) to a torque of 60 Nm; then tighten an additional 60° turn utilizing the special tool PN 95970034.

Note: In case of repairs to early type transmissions replace the fixing screws with the new type. Screw (PN 155750) could be fitted on all models before the 512TR which fit the crown gear PN 110016.



Rif	Dis. N° Part. N°	Q.ty	Denominazione	Description
1	146769	1	Differenziale compl. Non più fornito - sostituito dal n° 155099.	Differential, complete Not available - replaced with Nr. 155099.
2	155099 110016	1 1	Differenziale compl. Coppia conica compl. R.14/45. Montata fino al cam- bio n°1512. Non più fornita - Sostituita dalla n°159069.	Differential, complete Crown pinion ratio R.14/45 Fitted until gear box Nr.1512 Not available replaced with Nr. 159069.
-	159069	1	Richiede vite passo mm 1,25 (n°155750). Coppia conica compl. Montata dal cambio n°1513 Richiede vite passo mm 1 (n°153710).	Required screw with mm 1,25 thread (Nr.155750). Crown pinion ratio R.14/45 Fitted from gear box Nr.1513 screw with mm 1,0 is required. (Nr.153710).
-	13916370	2	Spina centraggio: vale per coppia conica n°159069 e differenziale n°155099.	Parallell pin: valid for crown pinion ratio Nr.159069 and differential Nr.155099.
3	103231	1	Distanziale per cuscinetto Sx. supporto differenziale, spess. mm. 2,862	Spacer for L.H.differential support bearing, 2,862 mm. thickness
-	103422	1	Idem spessore mm. 2,40	Ditto thickness mm. 2,40
-	132923	1	Idem spessore mm. 2,45	Ditto thickness mm. 2,45
-	132924	1	Idem spessore mm. 2,50	Ditto thickness mm. 2,50
-	132925	1	Idem spessore mm. 2,55	Ditto thickness mm. 2,55
-	103423	1	Idem spessore mm. 2,60	Ditto thickness mm. 2,60
-	132926	1	Idem spessore mm. 2,65	Ditto thickness mm. 2,65
-	132927	1	Idem spessore mm. 2,70	Ditto thickness mm. 2,70
-	132928	1	Idem spessore mm. 2,75	Ditto thickness mm. 2,75

Rif	Dis. N° Part. N°	Q.ty	Denominazione	Description
-	103424	1	Idem spessore mm. 2,80	Ditto thickness mm. 2,80
-	132929	1	Idem spessore mm. 2,85	Ditto thickness mm. 2,85
-	132930	1	Idem spessore mm. 2,90	Ditto thickness mm. 2,90
-	132931	1	Idem spessore mm. 2,95	Ditto thickness mm. 2,95
-	103425	1	Idem spessore mm. 3,00	Ditto thickness mm. 3,00
-	103426	1	Idem spessore mm. 3,20	Ditto thickness mm. 3,20
4	10517070	2	Rosetta	Washer
5	103875	12	Vite:(non più fornita).	Screw:(Not available).
-	151607	12	Sostituita dalla n° 155750.	Replaced with Nr.155750.
-	153710	12	Vite:(passo mm 1,25). Per coppia conica n°110016.	Screw:(mm 1,25 thread). For crown pinion ratio Nr.110016
-	149415	6	Vite:(passo mm 1). Per coppia conica n°159069.	Screw:(mm 1,0 thread). For crown pinion ratio Nr.159069
6	143082	2	Piastrina	Plate
7	139898	2	Assieme semiasse	Axle shaft assy
8	139899	2	Flangia attacco semiasse	Axle shaft securing flange
9	12605674	12	Vite	Screw
10	125390	1	Rosetta	Washer
11	101634	1	Cuscinetto supporto differenz. per coperchio Dx.	Bearing for differential support for R.H. cover
12	11399121	2	Cuscinetto supporto differenz. per coperchio Sx.	Bearing for differential support for L.H. cover
13	70000781	2	Vite	Screw
14	70000782	2	Kit sostituzione cuffia	Protection replacement set
-	70000782	2	-Lato cambio-	-Gearbox side-
-	154213	4	Kit sostituzione cuffia	Protection replacement set
-	154214	4	-Lato ruota-	-Wheel side-
15	154213	4	Fascetta piccola	Little clamp
16	154214	4	Fascetta grande	Big clamp

Rif	Dis. N° Part. N°	Q. N°	Denominazione	Description
1	109718	1	Albero primario	Main shaft
2	136330	1	Ingranaggio 3° velocità -Vale per cuscinetto n° 103042 -	3th speed gear -Valid for bearing n° 103042 -
-	148249	1	Ingranaggio 3° velocità -Vale per cuscinetto n° 155694 -	-Valid for bearing n° 155694 -
3	150887	1	Perno per Ingranaggio folle RM	Pin for reverse Idle gear
4	136340	1	Ingranaggio folle RM	Reverse Idle gear
5	136344	1	Ingranaggio 4° velocità	4th speed gear
6	140209	1	Ingranaggio 5° velocità	5th speed gear
7	103030	1	Cuscinetto a rullini	Roller bearing
8	107499	1	Pista rullini 5° velocità	5th speed straight race
9	110173	1	Distanziale	Spacer
10	140193	1	Ingranaggio 1° velocità	1st speed gear
11	140195	1	Ingranaggio 2° velocità	2nd speed gear
12	136333	1	Ingranaggio RM	Reverse gear
13	109002	1	Gabbia a rullini	Roller cage
14	126234	1	Cuscinetto lato ponte	Bearing axle side
15	153080	1	Ghiera anteriore	Front ring nut
16	105765	1	Anello arresto cuscinetto	Bearing stop ring
17	153067	1	Ghiera posteriore	Rear ring nut
18	104731	2	Rosetta	Washer

Rif	Dis. N° Part. N°	Q. N°	Denominazione	Description
19	103042	1	Cuscinetto anteriore (spessore 27 mm) vale per ingranaggio 3° velocità n° 136330	Front bearing (Thickness 27 mm) valid for 3th speed gear nr. 136330
-	155694	1	Cuscinetto anteriore (spessore 28 mm) vale per ingranaggio 3° velocità n° 148249	Front bearing (thickness 28 mm) valid for 3th speed gear nr. 148249
20	100703	2	Distanziale	Spacer
21	104734	2	Gabbia a rullini	Roller cage
22	103035	1	Vite	Screw
23	10903221	1	Vite	Screw
24	134041	1	Dado	Nut
25	127494	1	Rosetta	Washer
26	106046	1	Corpo sincronizzatore	Synchronize body
27	145244	2	Molla ad anello per tassello	Spring ring for insert
28	150628	2	Anello flottante sincronizzatore	Synchronesh ring
29	126201	3	Tassello per sincronizzatore	Synchronizer insert
30	131801	1	Manicotto per sincronizzatore	Synchronizer sleeve
31	109725	1	Spina cilindrica	Paralell pin
32	107525	1	Gabbia a rullini	Roller cage
33	107524	1	Pista rullini	Roller race
34	109724	1	Anello di tenuta	Seal ring
35	10275550	1	Tappo	Plug



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	16	3/1/95	672

SUBJECT: CLUTCH MASTER CYLINDER PIPE (PART NUMBER 150067)

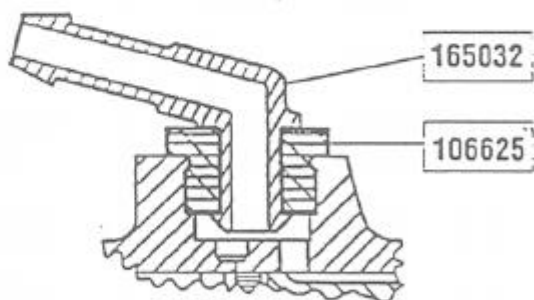
We have experienced fractures of the clutch master cylinder elbow and now supply a modified and improved elbow.

This modified elbow is now available separately to avoid the replacement of the entire clutch master cylinder.

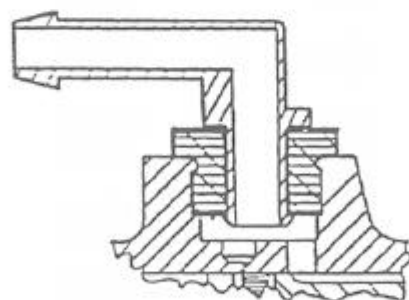
The modified elbow (see drawing below) is available through our parts department (part number 165032).

NOTE: When installing the modified elbow, it is also necessary to replace the rubber seal (part number 106625).

Modified elbow



Elbow before the modification





FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
All Models	11	17	7/1/95	673

Page 1 of 3

SUBJECT: RETROFIT FOR AIR CONDITIONING SYSTEMS

As you already are aware, the freon R12 is becoming difficult to find and at some point will no longer be available for recharging A/C systems.

While our new cars have already been designed for the replacement refrigerant, R134A, those using A/C systems with freon R12 will need to be retrofitted to use R134A, so that the A/C system can operate when the stock of R12 is exhausted.

The models that have been considered until now are:

348 - Mondial - Testarossa - 512TR - F40

In cooperation with the company ICI (specialized in chemical compounds), a suitable retrofit has been developed to use the freon R134A without any modifications to the cars' A/C system.

The following is the description of the main retrofitting work to be performed on the A/C system.

1. Emptying the mineral oil from the A/C system

- Check the correct operation of the A/C system with R12 (there should be no leaks), let the A/C system operate at MAX cold for approximately 10 minutes. This will accumulate the maximum amount of oil on the A/C compressor.
- By means of a suitable R12 charging/discharging equipment, recover the R12.

2. Manual emptying the mineral oil from the A/C compressor and charge with oil.

- Disassemble the A/C compressor from the car, open the plugs of the compressor and drain the mineral oil manually.
- Fill the compressor with new type oil (listed below) in the same quantity as the previous type mineral oil. Turn and shake the compressor to flush the possible mineral oil residue from the compressor, then repeat the manual emptying procedure of this oil.
- Charge the compressor again with the new type oil, in the same quantity as the previous type mineral oil. Install the compressor on the engine and close the system as soon as possible.

3. Replacement of other A/C parts (see listing on page 3)

- Replace the seal rings on the freon pipes.
- Replace the receiver dryer.
- Install new R134A Service Adaptors.

**FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION**

Model	Area	Number	Date	Prog. No.
All Models	11	17	7/1/95	673

Page 2 of 3

4. A/C system charging with R134A freon

- Disconnect the equipment for the R12 freon, and install the R134A adapters to connect the equipment suitable for R134A freon.

Note: as the adapters are a fixed type, they cannot be removed from the car.

- Apply a vacuum to the A/C system for approximately 45 minutes, check for any leakages in the system.
- Charge the system with R134A freon in the amount of 90% of the original R12 quantity.

5. Application of labels

- After the work has been performed, firmly affix the label (in a visible place) clearly showing the type of freon and oil to be used, to avoid having the system charged with the wrong type of freon/oil.

To obtain the new type oil, please contact the following company who will inform you as to the location of a supplier in your area.

Technical Chemical
Mr. Larry Easterland
1-800-527-0885 Ext. 112

Emkarate RL100, or
RL 100 S, or
Sercon



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
All Models	11	17	7/1/95	673

LIST OF THE PARTS TO BE USED FOR RETROFITTING THE A/C SYSTEM

Page 3 of 3

Model	Description	Code number	Dehydrator filter no.
F40	Set of rings for pipe 62482600 (from condenser to cleaner)	162210	62432700
	Set of rings for pipe 62482700 (from cleaner to evaporator)	162211	
	Set of rings for pipe 62482800 (from evaporator to compressor)	162212	
	Set of rings for pipe 62482900 (from compressor to condenser)	162213	
	Low pressure charge fitting	166767	
	High pressure charge fitting	166769	
Mondial t	Set of rings for pipe 62502100 (from evaporator to compressor)	162214	62433100 (LH drive) 61129700 (RH drive)
	Set of rings for pipe 62502200 (from cleaner to evaporator)	162215	
	Set of rings for pipe 62502300 (from compressor to cleaner)	162216	
	Set of rings for pipe 62502400 (from condenser to cleaner)	162217	
	High pressure charge fitting	166768	
348	Set of rings for pipe 62642300 (from compressor to pipe under-flatbed)	162218	62655500
	Set of rings for pipe 62642400 (from under-flatbed to condenser)	162219	
	Set of rings for pipe 62642500 (from condenser to dehydrator filter)	162220	
	Set of rings for pipe 62642600 (from dehydrator filter to evaporator)	162221	
	Set of rings for pipe 62642700 (from evaporator to pipe under-flatbed)	162222	
	Set of rings for pipe 62642800 (from pipe under-flatbed to compressor)	162223	
	Low pressure charge fitting	166766	
	High pressure charge fitting	166769	
512 TR	Set of rings for pipe 124024 (from dehydrator filter to evaporator)	162224	62655500 (LH drive) 62655600 (LH drive) 63638800 (GD) When stocks finish, use 63934300 (LH drive) 64734000 (RH drive)
	Set of rings for pipe 150474 (from condenser to dehydrator filter)	162225	
	Set of rings for pipe 149977 (from evaporator to compressor)	162226	
	Set of rings for pipe 149762 (from compressor to condenser)	162227	
	Low pressure charge fitting	166767	
	High pressure charge fitting	166768	

NOTE: when the 90° fitting is used, remove the present charge valve.



STRAIGHT LOW
PRESSURE FITTING
Drwg. No. 166766

90° LOW PRESSURE
FITTING
Drwg. No. 166767

STRAIGHT HIGH
PRESSURE FITTING
Drwg. No. 166768

90° HIGH PRESSURE
FITTING
Drwg. No. 166769

TECHNICAL DEPARTMENT



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	25	12/5/97	701/B

SUBJECT: SHELL LUBRICANTS AND FLUIDS

Page 1 of 4

PLEASE NOTE THAT THIS BULLETIN REPLACES BULLETIN NO. 701/A

Please be informed that, starting from January 1996, all vehicles will be supplied with SHELL lubricants and fluids. The new label for gearbox and engine oil, which is placed in the engine compartment in the same position as the previous one, shows the type of new lubricants to be used.

The owner's manual that is provided with each vehicle will contain all of the data concerning the new lubricants from SHELL.

In order to organize the purchase of the new products that are to be used in your service departments, please contact the respective SHELL representative from your region. For your reference, attached is a list of SHELL distributors throughout the world.

The table below depicts the main features of SHELL products, which are currently being used on Ferrari vehicles.

NOTE: These products can be utilized on ALL earlier Ferrari models.

Table of Lubricants and Fluids Recommended by FERRARI		SHELL
PARTS TO BE SERVICED:	FILL WITH:	PERFORMANCE SPECIFICATIONS:
ENGINE	SHELLHELIXULTRA	SAE 5W-40 (*)
GEARBOX/DIFFERENTIAL	SHELLTRANSAXLEOIL	SAE 75W-90
BRAKE/CLUTCH CIRCUIT	SHELLDONAXUB BrakeFluidDOT4 Ultra	
AUTOMATIC TRANSMISSION	SHELLDONAXTX	GMDEXRONIII
POWER STEERING	SHELLDONAXTA	GMDEXRONIID (obsolete)
COOLING SYSTEM	GLYCOSHELL	Pure anti-freeze, to be diluted usually at 50% in water.
(*) Due to weather conditions in some countries, the marketed version has a 15W-50 viscosity. This viscosity is approved as well by Ferrari.		



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	25	12/5/97	701/B

Page 2 of 4

ITALIA

PIEMONTE - VALLE D'AOSTA - LIGURIA

Sig. BORGES PIERMARIO
Via Brandizzo, 118
10088 VOLPIANO TO
Tel/Fax 011/9952602
(Cell. 0336/446689)

LOMBARDIA

Sig. ARGIA PIERLUIGI
c/o Sede - Via Chiese, 74
20126 MILANO MI
Tel. 02/66160.759
Fax 02/66160.720
(Cell. 0336/446688)

TOSCANA - SARDEGNA

Sig. GALBIATI GIANLUCA
c/o Sede - Via Chiese, 74
20126 MILANO - MI
Tel. 02/66160.731
Fax 02/66160.720
(Cell. 0336/446677)

TRENTINO - FRIULI V.G. - VENETO

Sig. RESCH EMILIO
Via Brigata Padova, 17
35138 PADOVA
Tel/Fax 049/8718893
(Cell. 0336/584921)

EMILIA ROMAGNA - MARCHE

Sig. ROSSI MARCO
Via Padova, 38
44100 FERRARA
Tel/Fax 0532/772443
(Cell. 0336/584920)

UMBRIA - ABRUZZO E MOLISE - LAZIO

Sig. MILARDI LENIO
c/o Shell Italia Via Bianchini, 51
00142 ROMA
Tel. 06/50392217
Fax 06/5030512
(Cell. 0336/331412)

CAMPANIA

Sig. GAMBI PASQUALE
Via Luca Giordano, 16
80127 NAPOLI
Tel/Fax 081/5565559
(Cell. 0336/446676)

PUGLIA - BASILICATA

Sig. MASSA PIETRO
Via Gorizia, 37
70038 TERLIZZI - BA
Tel/Fax 080/8810223
(Cell. 0336/331408)

CALABRIA - SICILIA

Sig. MAUROMICALI ANTONINO
Via F. Crispi, 554
98020 BARRACCA S. TERESA RIVA - ME
Tel/Fax 0942/792411
(Cell. 0336/331413)

ARGENTINA

Shell Compañía Argentina
de Petróleo SA - (CAPSA)
Casilla de Correo
BUENOS AIRES 1000
IDD Code +54 1
Telephone 328 0333
Facsimile 328 8783

AUSTRALIA

The Shell Company of Australia Ltd,
P.O. Box 872K
MELBOURNE
Victoria 3001.
IDD Code +61 3
Telephone 666 5444
Facsimile 666 5008

AUSTRIA

Shell Austria AG,
Postfach 174
A-1011 VIENNA
IDD Code +43 1
Telephone 79797 (0)
Facsimile 79797401

BELGIUM

Belgian Shell SA,
47 Cantersteen,
B- 1000 BRUSSELS
IDD Code +32 2
Telephone 508 9111
Facsimile 511 0571

BRAZIL

Shell Brasil SA Petróleo
Caixa Postal 62050
RIO DE JANEIRO, RJ 22250.
IDD Code +55 21
Telephone 559 7000
Facsimile 559 7575

CANADA

Shell Canada Ltd,
P.O. Box 100, Station 'M'
CALGARY
Alberta T2P 2H5
IDD Code +1 403
Telephone 691 3111
Facsimile 691 4183

CHINA

Shell China Ltd (North China)
1331 China World Tower,
China World Trade Centre,
1 Jian Guo Men Wai Avenue
BEIJING 100004,
The people's Republic of China
IDD Code +86 10
Telephone 505 4501
Facsimile 505 4511

COLOMBIA

Shell Colombia SA,
Apartado Aereo No. 058642
BOGOTÁ
IDD Code +57 1
Telephone 210 0100
Facsimile 235 4906

CYPRUS

Shell Cyprus Ltd,
Shell House,
35 Academy Avenue,
Strovolos, Nicosia 143.
Telex 4270 (SCT Nicosia)
Telephone (3572) 316222
Facsimile (3572) 315432

CZECH REPUBLIC

Shell Czech Republic as
Na Strži 63
140 62 PRAHA 4
IDD Code +42 2
Telephone 6114 2433
Facsimile 6121 1163

DENMARK

A/S Dansk Shell,
2 Kampmannsgade,
COPENHAGEN DK-1780
IDD Code +45
Telephone 3337 2000
Facsimile 3315 3912

FINLAND

oy Shell ab,
P.O. Box 16
Vantaa FIN-1301
HELSINKI
IDD Code +358 0
Telephone 85701
Facsimile 8570 2299

TECHNICAL DEPARTMENT



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	25	12/5/97	701/B

Page 3 of 4

FRANCE

Société des Pétroles Shell,
89 Bd Franklin Roosevelt
Rueil Malmaison Cedex 92564
PARIS
IDD Code +33 1
Telephone 47 14 71 00
Facsimile 47 14 82 99

GERMANY

Deutsche Shell AG
Postfach 600520
Hamburg 22205
IDD Code +49 40
Telephone 63240
Facsimile 6321051

GREECE

Shell Company (Hellas) Ltd,
P.O. Box 231
Avenue, 176.76 Kallithea,
ATHENS GR. 102.10
IDD Code +30 1
Telephone 9295 911
Facsimile 9222 804

HONG KONG

Shell Hong Kong Ltd,
P.O. Box 37
General Post Office
HONG KONG
IDD Code +852
Telephone 2506 7000
Facsimile 2506 2037

IRELAND

Irish Shell Ltd,
Shell House, Beech Hill,
Clonskeagh
DUBLIN 4
IDD Code +353 1
Telephone 28 38844
Facsimile 28 38320

JAPAN

Showa Shell Sekiyu KK
Central P.O. Box 1239
TOKYO 100
IDD Code +81 3
Telephone 3580 0121
Facsimile 3580 5805

LIBANON

Coral Oil CO.
Mr. George Kamissi
583 Av. De Gaulle
BEIRUTH
IDD Code +11
Telephone 582230 - 584423
Facsimile 582350

LUXEMBOURG

Shell Luxembourggeoise SA,
Rue de l'Industrie 7,
L-8069 Bertrange.
IDD Code +352
Telephone 3111 411
Facsimile 3111 4145

MALAYSIA

Shell Malaysia Trading Sendirian Berhad
P.O. Box 11027
KUALA LUMPUR 50732
IDD Code +60 3
Telephone 2559144
Facsimile 2512957

NETHERLANDS

Shell Nederland
Verkoopmaatschappij B.V.
P.O. Box 1414
ROTTERDAM 3000 DN
IDD Code +31 10
Telephone 469 6911
Facsimile 411 6828

NEW CALEDONIA

Société Shell Pacifique
Route de La Digue
Ducos, Noumea
IDD Code +687
Telephone 285720
Facsimile 275790

NEW ZEALAND

Shell New Zealand Ltd,
Shell House, 96-102
WELLINGTON
IDD Code +64 4
Telephone 472 0080
Facsimile 498 0100

NORWAY

A/S Norske Shell
P.O. Box 1154 Sentrum
0107 OSLO
IDD Code +47
Telephone 22 66 5000
Facsimile 22 66 5541

OMAN

Shell Marketing (Oman) Ltd
P.O. Box 38
Mina al Fahal, Muscat Postal Code 116
MUSCAT
IDD Code +968
Telephone 570 100
Facsimile 570 121

PORTUGAL

Shell Portuguesa SA,
Apartado 2008
LISBOA CODEX 1101
IDD Code +351 1
Telephone 355 9155
Facsimile 353 2146

SAUDI ARABIA

Shell Arabian Markets +
Shell Lubs Co. Ltd
P.O. Box 12578
JEDDAH 21483
IDD Code +966 2
Telephone 637 7879
Facsimile 637 6926

SAUDI ARABIA

Aljomaih and Shell Lub Oil Co. Ltd
P.O. Box 41467
RIYADH 11521
IDD Code +966 1
Telephone 498 0407
Facsimile 498 0819

SINGAPORE

Shell Eastern Petroleum Pte Ltd
P.O. Box 643
SINGAPORE 9012
IDD Code +65
Telephone 229 8402
Facsimile 224 3656



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	25	12/5/97	701/B

Page 4 of 4

SLOVENIA—

Shell Slovenija doo
10th Floor World Trade Centre
156 Dunaška Cesta
61000 LJUBLJANA
IDD Code +386 61
Telephone 168 7070
Facsimile 168 8033

SOUTH AFRICA

Shell South Africa (Pty) Ltd,
P.O. Box 2231
CAPE TOWN 8000
IDD Code +27 21
Telephone 408 4911
Facsimile 419 2864

SPAIN

Shell España SA,
Apartado 652
MADRID 28080
IDD Code +34 1
Telephone 537 0100
Facsimile 537 0106

SWEDEN

A/B Svenska Shell
Armegatan 38
S- 171 79 Solna,
STOCKHOLM
IDD Code +46 8
Telephone 730 8000
Facsimile 730 4603

SWITZERLAND

Shell Aseol A.G
Postfach 2716
BERN CH-3001
IDD Code +41 31
Telephone 257 844
Facsimile 262 460

TAIWAN

Shell Taiwan Ltd
P.O. Box 108-1
TAIPEI
Taiwan R.O.C.
IDD Code +886 2
Telephone 720 8088
Facsimile 757 6376

THAILAND

The Shell Company of Thailand Ltd,
G.P.O. Box 345
BANGKOK 10501
IDD Code +66 2
Telephone 249 0492
Facsimile 249 0503

TURKEY

The Shell Company of Turkey Ltd
P.K 123
Acibadem
ISTANBUL 81020
IDD Code +90 1
Telephone 391 57 00
Facsimile 391 57 44

UNITED ARAB EMIRATES

(DUBAI - BAHRAIN)

Shell Markets (Middle East) Ltd,
P.O. BOX 307
DUBAI
IDD Code +971 4
Telephone 533 900
Facsimile 533 861

UNITED KINGDOM

Shell Oils
Wavell Road
MANCHESTER M22 5SB
IDD Code +44 61
Telephone 499 4000
Facsimile 499 8648

UNITED STATES

Shell Oil Company,
P.O. Box 2463
HOUSTON
Texas 77252-2463
IDD Code +1 713
Telephone 241 6161
Facsimile 241 4044

VENEZUELA

Shell Venezuela SA,
Avenida la Estancia,
Edificio Centro Banaven,
Torre 'C', Piso 7,
Chuao, 1060-A Caracas.
IDD Code +582
Telephone 916777
Facsimile 924591



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	35	12/5/97	725

SUBJECT: CLEAR COAT PAINTING

Page 1 of 4

Please be advised that the body of all Ferrari models (in all colors excluding white) now are painted with a clear coat (GLASURIT) during production.



The paint, in the proper shade, is identified by the plate applied on the inner side of the front compartment, and can be applied on the inner side of the front compartment and can be achieved by the Glasurit tintometer, or as required by any Glasurit center.

The paint tins shall be used within 12 months from the manufacture date and must be stored completely sealed in dry cabinets.

The main instructions for the application of this paint within the network are noted below.

GENERAL INFORMATION

For repairs, use the following types of Glasurit paints:

- *Anchoring Primer EP Glassofix 801-152 - Insulating-Filling Primer Glassodur 285-100
- *Single Coat Pastel Glassodur - Acryl - Polyurethaneic Paint, Series 21
- *Double Coat Pastel Paint Glasurit, Series 54
- *Double Coat Metallized Paint Glassomax, Series 54
- *Transparent Paint for Double Coat Paint, Glassodur 923-54

The above products, complying with Ferrari standard quality, are available on the market by authorized GLASURIT retailers. If some of the above products cannot be found or if technical information concerning alternative products is required, please contact the USA GLASURIT TECHNICAL CENTER listed below:

BASF Corporation
Coatings and Colorants Division
14700 Dexter
Detroit, Michigan 48238
Tel: 313-861-1000
Fax: 313-861-1013



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	35	12/5/97	725

Page 2 of 4

APPLICATION METHODS:1. Preparation of the Paint:

- A. Silicone removing treatment - with thinner GLASSOMAX 541-5
- B. For re-making till the substrate (iron, aluminum, resin)
- * Apply the anchoring PRIMER EP GLASSOFIX 801-1552
 - * Catalyst 965-32/2
 - * Catalyst Ratio 2:1
 - * Thinner 352-91/1
 - * Pot-life at 20 degrees Celcius 10 hours
 - * Utilization viscosity at 20 degrees Celcius 14 / 16 sec DIN 4
 - * Air pressure 4 bar
 - * Nozzle for fall gun 1.3 / 1.5 mm
 - * Nozzle for suction gun 1.7 / 1.8 mm
 - * Passes 1 = 15 / 20 micron, dried film
2 = 40 / 50 micron, dried film
4 = max. 100 micron, high thickness
30 minutes with the part at 80 degrees Celcius or 60 minutes with the part at 60 degrees Celcius
 - * Oven stoving
- C. To level significant, localized defects Apply by a stopping knife some stopper of the series GLASSOMAX 8-3 or GLASSIT 839-20.
- D. Sand with abrasives P 400-800, wet by hand
P 320-400, dry with rotary-orbital sander
- E. For remaking till the couch or EDP:
- * Apply the insulating/filling primer GLASSODUR 285-100
 - * Catalyst 929-73
 - * Catalyst ratio 4:1
 - * Thinner 352-91/1
 - * Pot-life at 20 degrees Celcius 2 hours
 - * Utilization viscosity at 20 degrees Celcius 16 / 18 sec DIN 4
 - * Air pressure 4 / 5 bar
 - * Nozzle for fall gun 1.3 / 1.5 mm
 - * Nozzle for suction gun 1.7 / 1.8 mm
 - * Passes 1 = 15 / 20 micron, dried film
3 = about 50 micron, dried film
30 minutes with the part at 80 degrees Celcius or 60 minutes with the part at 60 degrees Celcius.
 - * Oven stoving
 - * Sanding with abrasive P 800/1000, wet by hand, OR,
P 400 dry with rotary-orbital sander

NOTE: In case of poor coating capacity, it is possible to color the couch 285-100 with max. 25% of paint series 21, catalyzing the whole with a 25% of catalyst.



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	35	12/5/97	725

Page 3 of 4

PAINT APPLICATION METHODS:

A. Single Coat Pastel Glassodur-Acryl-Polyurethane Paint, Series 21 (medium solid MS)

* Catalyst	929-73
* Catalyst Ratio	2:1
* Thinner	352-91/1 about 10% - standard type, OR,
* For temperatures over 30 degrees Celcius	352-216 about 10% - slow type, OR,
* For temperatures below 18 degree Celcius	352-50 about 10% - fast type
* Pot-life at 20% Celcius	4 hours
* Utilization viscosity at 20 degrees Celcius	22 sec DIN 4
* Air pressure	4 / 5 bar
* Nozzle for fall gun	1.2 mm
* Nozzle for suction gun	1.4 mm
* Passes	2 / 3 for 50 / 70 micron, dried film
* Flash period	at 20 degrees Celcius for 15 minutes
* Oven stoving	30 minutes with the part at 80 degrees Celcius, OR 60 minutes with the part at 60 degrees Celcius
* Oven stoving	with IR lamps, about 12 minutes, at a distance of 25 cm

NOTE: Do not use IR lamps on resin components (bumpers, outside mirrors, 456 GT bonnet, F-50 body, etc.).

B. Double Coat Pastel Couch Paint GLASURIT, Series 54

* Thinner	352-91/1
* Utilization viscosity at 20 degrees Celcius	22 / 24 sec FORD 3
* Air pressure	4 / 5 bar
* Nozzle for fall gun	1.2 mm
* Nozzle for suction gun	1.4 mm
* Passes	2 / 3 for 20 / 28 micron, dried film
* Flash period at 20 degrees Celcius	2 / 3 minutes between the passes 10 / 12 minutes for the last

NOTE: The flash period must be considered over only after the paint has become completely matted. The transparent application of a partially flashed surface can originate stains, poor hardness and adhesion.

C. Double Coat Catalyzed Couch Paint GLASSOMAX, Series 54

* Diluent	352-91/1
* Thinner	352-91/1
* Utilization Viscosity at 20 degrees Celcius	22 / 24 sec FORD 3
* Air pressure	4 / 5 bar
* Nozzle for fall gun	1.2 mm
* Nozzle for suction gun	1.4 mm
* Passes	2 / 3 for 20 / 25 micron, dried film
* Flash period at 20 degrees Celcius	2 / 3 minutes between the passes 10 / 12 minutes for the last.

TECHNICAL DEPARTMENT



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	35	12/5/97	725

Page 4 of 4

NOTE: The flash period must be considered over only after the paint has become completely matted. The transparent application of a partially flashed surface can originate stains, poor hardness and adhesion.

D. TRANSPARENT APPLICATION METHODS - MEDIUM SOLID

1. Transparent Paint for Double Coat Paint, GLASSODUR 923-54

* Catalyst	929-73
* Catalyst Ratio	2:1
* Thinner	352-91/1
* Pot-life at 20% Celcius	4 hours
* Utilization viscosity at 20 degrees Celcius	22 sec DIN 4
* Air pressure	4 / 5 bar
* Nozzle for fall gun	1.2 mm
* Nozzle for suction gun	1.4 mm
* Passes	2 / 3 with flash point of about 3 minutes between the passes, for a total thickness of 50 / 60 micron
* Oven stoving	30 minutes with the part at 80 degrees Celcius, OR 60 minutes with the part at 60 degrees Celcius, OR with IR lamps, about 12 minutes, at a distance of 25 cm

NOTE: Do not use IR lamps on resin components (bumpers, outside mirrors, 456 GT bonnet, F-50 body, etc.).

**FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION**

Model	Area	Number	Date	Prog. No.
ALL	11	37	12/5/97	731

SUBJECT: PAINTING WITH PPG PRODUCTS

Page 1 of 6

Please be advised that the painting of Ferrari bodies with **PPG PRODUCTS** started with the production date of 10/23/96. Excluding the F-50 model vehicle, attached please find a list of the vehicles that have been painted with PPG products through production date 06//10/97.

Therefore, between the periods of 10/23/96 through 6/10/97, vehicles were being painted with 2 types of paint:

1. GLASURIT
2. PPG



NOTE: Beginning next September, the whole production will be painted with PPG products.

The paint, in the proper shade, is identified by the plate applied on the inner side of the front compartment (F 355) or in the engine compartment (456 GT/GTA and 550 Maranello), and can be achieved by the **GLOBAL DELTRON PPG** tintometer system, or as required by PPG.

The main instructions for the application of PPG paint within the network are noted below.

GENERAL INFORMATION

For repairs, use the following types of PPG products:

- *Anti-Corrosive Epoxy Primer DP 40-D 834
- *Insulating-Filling Primer K 93 D 825
- *Polyester Stopper Galvaplant 77 A 656
- *Double Coat Pastel Paint Deltron BC
- *Transparent Paint Deltron Global D 800

The above products, complying with Ferrari standard quality, are available on the market by authorized PPG retailers. If some of the above products cannot be found or if technical information concerning alternative products is required, please contact the **USA PPG TECHNICAL CENTER** listed below:

PPG Industries, Inc.
19699 Progress Drive
Strongsville, OH 44136

Attn: Bill Kruger
Tel: 440-572-2800
Fax: 440-572-6979



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	37	12/5/97	731

Page 2 of 6

APPLICATION METHODS:1. Preparation of the Paint:

A. Silicone removing treatment - with thinner DX 330 D 837

B. For re-making till the substrate (iron, aluminum, resin)

- * Apply the anchoring ANTI-CORROSIVE PRIMER DP 40 D 834
- * Catalyst D 835
- * Catalyst Ratio 1:1
- * Thinner -
- * Pot-life at 20 degrees Celcius 16 hours
- * Utilization viscosity at 20 degrees Celcius 16 sec DIN 4
- * Air pressure 4 bar
- * Nozzle for fall gun 1.4 mm
- * Nozzle for suction gun 1.8 mm
- * Passes 2 = 30 / 50 micron
- * Oven stoving 30 minutes with the part at 70 degrees Celcius or 40 minutes with the part at 60 degrees Celcius

C. To level significant, localized defects: Apply the STOPPER GALVAPLAST 77 - A 656

D. Sand with abrasives:

P 400-800, wet by hand
P 320-400, dry with rotary-orbital sanderE. For remaking till the couch or EDP:

- * Apply the insulating/filling primer K 93 D 825
- * Catalyst D 803 - D 841 - D 861
- * Catalyst ratio 5:1
- * Thinner D 866
- * Pot-life at 20 degrees Celcius 1 hour
- * Utilization viscosity at 20 degrees Celcius 25 / 30 sec DIN 4
- * Air pressure 4 bar
- * Nozzle for fall gun 1.6 mm
- * Nozzle for suction gun 1.8 mm
- * Passes 2 = 60 / 70 micron
3 = 90 / 100 micron
- * Oven stoving 30 minutes with the part at 70 degrees Celcius or 40 minutes with the part at 60 degrees Celcius.
- * Sanding with abrasive P 600/800, OR,
P 360 dry

TECHNICAL DEPARTMENT



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	37	12/5/97	731

Page 3 of 6

PAINT APPLICATION METHODS:

A. Double Coat Pastel Couch Paint Deltron BC

* Thinner	D 808 - D 807
* Utilization viscosity at 20 degrees Celcius	16 sec DIN 4
* Air pressure	4 bar
* Nozzle for fall gun	1.2 mm
* Nozzle for suction gun	1.4 mm
* Passes	2 for 20 / 25 micron
* Flash period at 20 degrees Celcius	5 / 10 minutes between the passes 10 minutes for the last

NOTE: The flash period must be considered over only after the paint has become completely matted. The transparent application of a partially flashed surface can originate stains, poor hardness and adhesion.

B. Double Coat Metallized Couch Paint Deltron BC

* Thinner	D 808 - D 807
* Utilization viscosity at 20 degrees Celcius	16 sec DIN 3
* Air pressure	4 bar
* Nozzle for fall gun	1.2 / 1.4 mm
* Nozzle for suction gun	1.4 mm
* Passes	2 for 20 / 25 micron
* Flash period at 20 degrees Celcius	5 / 10 minutes between the passes 10 minutes for the last

C. Double Coat Catalyzed Couch Paint GLASSOMAX, Series 54

* Diluent	352-91/1
* Thinner	352-91/1
* Utilization Viscosity at 20 degrees Celcius	22 / 24 sec FORD 3
* Air pressure	4 / 5 bar
* Nozzle for fall gun	1.2 mm
* Nozzle for suction gun	1.4 mm
* Passes	2 / 3 for 20 / 25 micron, dried film
* Flash period at 20 degrees Celcius	2 / 3 minutes between the passes 10 / 12 minutes for the last.

NOTE: The flash period must be considered over only after the paint has become completely matted. The transparent application of a partially flashed surface can originate stains, poor hardness and adhesion.



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	37	12/5/97	731

Page 4 of 6

D. TRANSPARENT APPLICATION METHODS - MEDIUM SOLID

1. Transparent Paint for Double Coat Paint, GLOBAL DELTRON D 800

(Product to be used on a Pastel or Metallized Couch)

- * MS Catalyst D 803 - D 841 - D 861
- * Catalyst Ratio 3:1
- * Thinner D 808 - D 807 - D 812
- * Pot-life at 20% Celcius 6 hours
- * Utilization viscosity at 20 degrees Celcius 17 / 18 sec DIN 4
- * Air pressure 4 bar
- * Nozzle for fall gun 1.4 / 1.6 mm
- * Nozzle for suction gun 1.6 / 1.8 mm
- * Passes 2 = 50 / 60 micron
- * Oven stoving 20 minutes with the part at 80 degrees Celcius,
(special temperature), OR
30 minutes with the part at 60 degrees Celcius,
(special temperature) OR
with IR lamps, about 15 minutes, at a distance of 25 cm

NOTE: Do not use IR lamps on resin components (bumpers, outside mirrors, 456 GT bonnet, F-50 body, etc.).



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	37	12/5/97	731

Page 5 of 6

LIST OF SERIAL NUMBERS PAINTED WITH PPG PRODUCTS

Modello/Model	Telaio/Ch.	Colore/Colour	Modello/Model	Telaio/Ch.	Colore/Colour
456 GT	108564	ARGENTO NURBURGRING 101	550 maranello	109546	ROSSO CORSA 322
456 GT	108564	ARGENTO NURBURGRING 101	550 maranello	109547	ROSSO CORSA 322
456 GT	108564	ARGENTO NURBURGRING 101	550 maranello	109548	GRIGIO TITANIO 3238
456 GT	109188	BLU TOUR DE FRANCE	550 maranello	109551	ROSSO CORSA 322
456 GT	109218	AZZURRO CALIFORNIA	550 maranello	109552	GRIGIO TITANIO 3238
456 GT	109247	GRIGIO TITANIO 3238	550 maranello	109555	ARGENTO NURBURGRING
456 GT	109262	ARGENTO NURBURGRING	550 maranello	109557	ROSSO CORSA 322
456 GT	109273	ARGENTO NURBURGRING	550 maranello	109558	ROSSO CORSA 322
456 GT	109277	ROSSO CORSA 322	550 maranello	109560	ROSSO CORSA 322
456 GT	109894	GRIGIO TITANIO 3238	550 maranello	109561	ROSSO CORSA 322
456 GT	109894	GRIGIO TITANIO 3238	550 maranello	109562	ROSSO CORSA 322
550 maranello	107865	GRIGIO TITANIO	550 maranello	109563	ROSSO CORSA 322
550 maranello	108568	GRIGIO TITANIO 3238	550 maranello	109564	GIALLO MODENA 4305
550 maranello	108759	GRIGIO TITANIO 3238	550 maranello	109567	GIALLO MODENA
550 maranello	108879	ARGENTO NURBURGRING	550 maranello	109568	ARGENTO NURBURGRING
550 maranello	108879	ARGENTO NURBURGRING	550 maranello	109568	ARGENTO NURBURGRING
550 maranello	108880	AZZURRO CALIFORNIA	550 maranello	109569	ROSSO CORSA 322
550 maranello	108880	ARGENTO NURBURGRING	550 maranello	109570	ROSSO CORSA 322
550 maranello	108896	ARGENTO NURBURGRING	550 maranello	109571	ROSSO CORSA 322
550 maranello	108898	GRIGIO TITANIO 3238	550 maranello	109572	ROSSO CORSA 322
550 maranello	108953	ROSSO CORSA 322	550 maranello	109573	NERO 1250
550 maranello	108960	ARGENTO NURBURGRING	550 maranello	109574	NERO 1250
550 maranello	108998	ARGENTO NURBURGRING	550 maranello	109575	ARGENTO NURBURGRING
550 maranello	109010	ROSSO CORSA 322	550 maranello	109576	ROSSO CORSA 322
550 maranello	109013	GRIGIO TITANIO 3238	550 maranello	109577	ROSSO CORSA 322
550 maranello	109020	GRIGIO TITANIO 3238	550 maranello	109578	NERO 1250
550 maranello	109040	ARGENTO NURBURGRING	550 maranello	109579	BLU TOUR DE FRANCE
550 maranello	109055	GRIGIO TITANIO 3238	550 maranello	109961	GRIGIO TITANIO 3238
550 maranello	109056	ARGENTO NURBURGRING	F355 GTB	107371	ROSSO
550 maranello	109058	NERO 1240	F355 GTB	107582	ROSSO
550 maranello	109071	ARGENTO NURBURGRING	F355 GTB	107856	ROSSO
550 maranello	109071	ARGENTO NURBURGRING	F355 GTB	107920	GIALLO
550 maranello	109073	ARGENTO NURBURGRING	F355 GTB	108082	BLU PASTELLO
550 maranello	109073	ARGENTO NURBURGRING	F355 GTB	108328	GIALLO
550 maranello	109078	ARGENTO NURBURGRING	F355 GTB	108341	ROSSO
550 maranello	109088	GRIGIO TITANIO 3238	F355 GTB	108466	GIALLO MODENA 4305
550 maranello	109104	GRIGIO TITANIO 3238	F355 GTB	108508	GIALLO MODENA
550 maranello	109117	ARGENTO NURBURGRING	F355 GTB	108573	ROSSO CORSA 322
550 maranello	109133	GRIGIO TITANIO 3238	F355 GTB	108606	GIALLO MODENA
550 maranello	109145	GRIGIO TITANIO 3238	F355 GTB	108616	ARGENTO NURBURGRING 101
550 maranello	109147	GRIGIO TITANIO 3238	F355 GTB	108616	ARGENTO NURBURGRING 101
550 maranello	109148	ARGENTO NURBURGRING	F355 GTB	108616	ARGENTO NURBURGRING 101
550 maranello	109148	ARGENTO NURBURGRING	F355 GTB	108636	NERO 1240
550 maranello	109176	GRIGIO TITANIO 3238	F355 GTB	108925	GIALLO MODENA 4305
550 maranello	109191	GRIGIO TITANIO 3238	F355 GTB	108930	ROSSO CORSA 322
550 maranello	109192	GRIGIO TITANIO 3238	F355 GTB	108943	ROSSO CORSA 322
550 maranello	109207	ROSSO BARCHETTA 320	F355 GTB	108946	GIALLO MODENA 4305
550 maranello	109219	ARGENTO NURBURGRING	F355 GTB	108964	NERO 1240
550 maranello	109219	ARGENTO NURBURGRING	F355 GTB	108965	ROSSO CORSA 322
550 maranello	109219	ARGENTO NURBURGRING	F355 GTB	108967	GIALLO MODENA 4305
550 maranello	109220	GRIGIO TITANIO 3238	F355 GTB	108984	GIALLO MODENA 4305
550 maranello	109250	GRIGIO TITANIO 3238	F355 GTB	109030	ROSSO CORSA 322
550 maranello	109274	ARGENTO NURBURGRING	F355 GTB	109045	BIANCO AVUS 100
550 maranello	109276	GRIGIO TITANIO 3238	F355 GTB	109045	BIANCO AVUS 100
550 maranello	109517	GRIGIO TITANIO 3238	F355 GTB	109061	ARGENTO NURBURGRING
550 maranello	109517	GRIGIO TITANIO 3238	F355 GTB	109061	ARGENTO NURBURGRING
550 maranello	109525	GRIGIO TITANIO 3238	F355 GTB	109091	ROSSO CORSA 322
550 maranello	109527	ARGENTO NURBURGRING	F355 GTB	109119	ARGENTO NURBURGRING
550 maranello	109527	ARGENTO NURBURGRING	F355 GTB	109136	ROSSO CORSA 322
550 maranello	109528	GRIGIO TITANIO 3238	F355 GTB	109165	ROSSO CORSA 322
550 maranello	109529	ROSSO CORSA 322	F355 GTB	109166	NERO 1240
550 maranello	109533	VERDE SILVERSTONE	F355 GTB	109225	GIALLO MODENA
550 maranello	109536	GRIGIO TITANIO 3238	F355 GTB	109239	GRIGIO TITANIO 3238
550 maranello	109537	VERDE SILVERSTONE	F355 GTB	109241	ROSSO CORSA 322
550 maranello	109541	ROSSO CORSA 322	F355 GTB	109265	ROSSO CORSA 322
550 maranello	109542	GRIGIO TITANIO 3238	F355 GTB	109279	GRIGIO TITANIO 3238
550 maranello	109543	ARGENTO NURBURGRING	F355 GTB	109300	ROSSO CORSA 322
550 maranello	109545	ROSSO CORSA 322	F355 GTB	109311	ROSSO CORSA 322

TECHNICAL DEPARTMENT



FERRARI NORTH AMERICA, INC. - TECHNICAL INFORMATION

Model	Area	Number	Date	Prog. No.
ALL	11	37	12/5/97	731

Page 6 of 6

LIST OF SERIAL NUMBERS PAINTED WITH PPG PRODUCTS

Modello/Model	Telaio/Ch.	Colore/Colour	Modello/Model	Telaio/Ch.	Colore/Colour
F355 GTB	109311	ROSSO CORSA 322	F355 GTS	109484	NERO 1250
F355 GTB	109322	ARGENTO NURBURGRING	F355 GTS	109485	ROSSO CORSA 322
F355 GTB	109322	ARGENTO NURBURGRING	F355 GTS	109515	ROSSO CORSA 322
F355 GTB	109329	ROSSO CORSA 322	F355 Spider	108266	AZZURRO CALIFORNIA
F355 GTB	109330	ROSSO CORSA 322	F355 Spider	108473	GIALLO MODENA
F355 GTB	109340	ROSSO CORSA 322	F355 Spider	108499	AZZURRO CALIFORNIA
F355 GTB	109349	ARGENTO NURBURGRING	F355 Spider	108500	GIALLO MODENA
F355 GTB	109349	ARGENTO NURBURGRING	F355 Spider	108501	GIALLO MODENA
F355 GTB	109358	ROSSO FIORANO	F355 Spider	108561	ROSSO CORSA 322
F355 GTB	109411	GRIGIO TITANIO 3238	F355 Spider	108593	ROSSO CORSA 322
F355 GTB	109419	ROSSO CORSA 322	F355 Spider	108907	ROSSO CORSA 322
F355 GTB	109421	ROSSO CORSA 322	F355 Spider	108908	ROSSO CORSA 322
F355 GTB	109431	ROSSO CORSA 322	F355 Spider	108918	GRIGIO TITANIO 3238
F355 GTB	109432	ROSSO CORSA 322	F355 Spider	108919	BIANCO AVUS 100
F355 GTB	109433	ROSSO CORSA 322	F355 Spider	108919	BIANCO AVUS 100
F355 GTB	109441	ROSSO CORSA 322	F355 Spider	108956	NERO 1240
F355 GTB	109442	ROSSO CORSA 322	F355 Spider	109007	ROSSO CORSA 322
F355 GTB	109451	ROSSO CORSA 322	F355 Spider	109007	ROSSO CORSA 322
F355 GTB	109452	ROSSO CORSA 322	F355 Spider	109036	GIALLO MODENA 4305
F355 GTB	109460	ARGENTO NURBURGRING	F355 Spider	109052	GIALLO MODENA 4305
F355 GTB	109461	ROSSO CORSA 322	F355 Spider	109061	GIALLO MODENA 4305
F355 GTB	109470	BIANCO	F355 Spider	109082	ROSSO CORSA 322
F355 GTB	109470	BIANCO	F355 Spider	109098	ROSSO CORSA 322
F355 GTB	109470	BIANCO	F355 Spider	109114	NERO 1240
F355 GTB	109471	ROSSO CORSA 322	F355 Spider	109127	GIALLO MODENA
F355 GTB	109472	ROSSO CORSA 322	F355 Spider	109129	NERO 1240
F355 GTB	109482	ROSSO CORSA 322	F355 Spider	109143	GIALLO MODENA
F355 GTB	109491	ROSSO CORSA 322	F355 Spider	109156	NERO 1240
F355 GTB	109493	GRIGIO TITANIO 3238	F355 Spider	109169	ROSSO CORSA 322
F355 GTB	109494	ROSSO CORSA 322	F355 Spider	109170	ROSSO CORSA 322
F355 GTB	109495	BIANCO	F355 Spider	109184	ARGENTO NURBURGRING
F355 GTB	109496	ROSSO CORSA 322	F355 Spider	109201	GIALLO MODENA
F355 GTB	109501	ROSSO CORSA 322	F355 Spider	109202	GRIGIO TITANIO 3238
F355 GTB	109502	GIALLO MODENA	F355 Spider	109214	ARGENTO NURBURGRING
F355 GTB	109504	ROSSO CORSA 322	F355 Spider	109226	BLU TOUR DE FRANCE
F355 GTB	109505	ROSSO CORSA 322	F355 Spider	109230	ROSSO CORSA 322
F355 GTB	109506	ROSSO CORSA 322	F355 Spider	109238	NERO 1250
F355 GTB	109507	ROSSO CORSA 322	F355 Spider	109244	GRIGIO TITANIO 3238
F355 GTB	109556	ROSSO CORSA 322	F355 Spider	109256	ROSSO CORSA 322
F355 GTB	109595	ROSSO CORSA 322	F355 Spider	109258	GRIGIO TITANIO 3238
F355 GTB	109596	ROSSO CORSA 322	F355 Spider	109295	GIALLO MODENA
F355 GTB	109597	ROSSO CORSA 322	F355 Spider	109297	GIALLO MODENA
F355 GTB	109598	ROSSO CORSA 322	F355 Spider	109306	NERO 1250
F355 GTB	109610	ROSSO CORSA 322	F355 Spider	109318	GRIGIO TITANIO 3238
F355 GTB	109841	ROSSO CORSA 322	F355 Spider	109336	NERO 1250
F355 GTB	109841	ROSSO CORSA 322	F355 Spider	109347	GIALLO MODENA 4305
F355 GTS	108291	BLU METALLIZ.	F355 Spider	109354	ROSSO CORSA 322
F355 GTS	108497	GIALLO MODENA	F355 Spider	109356	ROSSO CORSA 322
F355 GTS	108557	ROSSO CORSA 322	F355 Spider	109356	ROSSO CORSA 322
F355 GTS	108986	ROSSO CORSA 322	F355 Spider	109368	ROSSO CORSA 322
F355 GTS	108988	ROSSO CORSA 322	F355 Spider	109377	GRIGIO TITANIO 3238
F355 GTS	109003	ARGENTO NURBURGRING	F355 Spider	109385	VIOLA ASPREY
F355 GTS	109004	GIALLO MODENA 4305	F355 Spider	109386	ROSSO CORSA 322
F355 GTS	109093	GIALLO MODENA 4305	F355 Spider	109389	ROSSO CORSA 322
F355 GTS	109283	ROSSO CORSA 322	F355 Spider	109398	ROSSO CORSA 322
F355 GTS	109333	GIALLO MODENA 4305	F355 Spider	109409	ARGENTO NURBURGRING
F355 GTS	109361	BLU TOUR DE FRANCE	F355 Spider	109414	ARGENTO NURBURGRING
F355 GTS	109373	ROSSO CORSA 322	F355 Spider	109417	ARGENTO NURBURGRING
F355 GTS	109383	ROSSO CORSA 322	F355 Spider	109430	GIALLO MODENA 4305
F355 GTS	109405	GRIGIO TITANIO 3238	F355 Spider	109437	NERO 1250
F355 GTS	109413	ROSSO CORSA 322	F355 Spider	109440	NERO 1250
F355 GTS	109434	GIALLO MODENA	F355 Spider	109458	GIALLO MODENA
F355 GTS	109463	ROSSO CORSA 322	F355 Spider	109476	GIALLO MODENA
F355 GTS	109465	ROSSO CORSA 322	F355 Spider	109497	NERO 1250
F355 GTS	109473	ROSSO CORSA 322	F355 Spider	109512	ARGENTO NURBURGRING
F355 GTS	109474	ROSSO CORSA 322	F355 Spider	109602	ROSSO CORSA 322
F355 GTS	109475	ROSSO CORSA 322	F355 Spider	109673	GIALLO MODENA



Service Bulletin

SB 80-10
6-18-81

SUBJECT: IGNITION DISTRIBUTOR ROTOR
VEHICLES: ALL FUEL INJECTED MODELS

SERVICE

INFORMATION: To ensure the rotor is properly and securely installed in the ignition distributor, perform the following:

- Before installing rotor, degrease the distributor shaft with a suitable degreasing solvent.
- Apply Loctite No. 242 on the fastening screw of the rotor, and on the outer surface of the camshaft extension.
- Noting the position of the notch in the distribution shaft, install rotor on to distributor shaft. Make certain rotor is fully snapped down on shaft.
Torque fastening screw to .3 kgm (26 inch pounds).
- Do not start engine for approximately 3 hours after installation of rotor in order to allow correct curing of the Loctite.

READ, INITIAL and PASS ON

SERVICE MANAGER	PARTS MANAGER	SERVICE WRITER	TECHNICAN				



Service Bulletin

SB 80-11
2-4-82



SUBJECT: ELECTRIC SIDE VIEW MIRROR
VEHICLES: ALL MODELS

GENERAL INFORMATION:

The plastic cap on the electric side view mirror is now available as a spare part.

PARTS INFORMATION

<u>Description</u>	<u>Part No.</u>
Mirror Cap	60991600

READ, INITIAL and PASS ON

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Ferrari



Service Bulletin

SB 90-5
12-15-83

SUBJECT: Cosmetic Preparation of Ferrari Cars
VEHICLES: 1983 and Subsequent Models

SERVICE INFORMATION:

PRELIMINARY:

Since this operation must be performed with proper care, we consider helpful to explain a procedure which WE RECOMMEND to follow very closely. The operation can be summarized in 3 main steps with, only if necessary, a 4th one:

- A) Washing and cleaning exterior and interior painted surfaces (including interior of front and rear compartments).
- B) Hand waxing with Simoniz Wax
- C) Cleaning interior and exterior non-painted surfaces.
- D) Only if necessary, and only locally, hand polishing with compound PALINAL 944 and further waxing with Simoniz Wax.

A) WASHING AND CLEANING PAINTED SURFACES

- 1) Remove any exterior and interior protection.
- 2) Open all bonnets and disconnect battery.
- 3) With a nebulizer hand pump, spray Diesel fuel on run channels, interior bonnet surfaces, and inside front and rear compartments.
- 4) Close bonnets.
- 5) In the same manner as step 3, spray a thin film of nebulized Diesel fuel on all the exterior panels of the car (including bumpers, mouldings, grids, hard top, etc.).
- 6) Wait approximately 5 minutes in order to allow softening of any dirt deposit and traces of Tuff-Kote.
- 7) Wash the exterior of the car with warm water and mild shampoo, using a pressure spraying machine with the pressure adjusted to the minimum setting necessary for a nebulized jet. The nozzle must be kept at least 1 meter away from the body.
- 8) Rinse with warm water following same procedure as step 7.
- 9) Dry the whole car with compressed air.

NOTE: we recommend to protect the compressed air nozzle with a rubber cap in order to avoid any damage in case it contacts the body.

- 10) Clean the whole car (exterior surfaces, grids, run channels, interior bonnet surfaces, around doors, etc.) with a pad of clean cotton soaked with alcohol first, and dry immediately with another pad of dry clean cotton.

NOTE: never push with pressure on the cotton pads.
ONLY USE CLEAN COTTON PADS.

B) HAND WAXING

By hand, with a clean cotton pad, polish all the exterior painted panels (not matt black surfaces) with SIMONIZ WAX (Ferrari p.n. 371800030), until drying of the wax applied. The residuals of dry wax shall be removed with a clean cotton pad.

C) CLEANING OF INTERIOR UPHOLSTERY & EXTERNAL NON-PAINTED SURFACES

- 1) Glasses: use a commercial degreasing glass cleaner.
Never use any glass cleaner containing silicone!!

- 2) Interior Upholstery: clean with commercial, preferable water-base, cleaning products.

Note: Leather upholstery must be cleaned exclusively with a little of water and neutral soap. Never employ detergents, alcohol or other solvents.

After washing, in order to preserve the suppleness of leather, it is recommended to apply, with a soft cloth, a small quantity of "CONNOLLY HIDE FOOD".

- 3) Bumpers, rubber mouldings, anodized grids, GTS top, gaskets, etc., must be cleaned with a pad of cotton soaked with Diesel fuel.

D) POLISHING WITH COMPOUND

- 1) Only in case of small local surface defects or scratches, hand polish locally with a clean cotton pad and compound type PALINAL 944 (Ferrari p.n. 559500007) the affected areas.
- 2) Afterwards, hand wax the compounded areas with clean cotton and SIMONIZ WAX same as step B.

LIST OF EQUIPMENT & PARTS NECESSARY FOR THE PROCEDURE DESCRIBED

DESCRIPTION	FERRARI P.N.
Nebulizer hard spraying pump	Not Available
Pressure water spraying machine	" "
Compressed air, with rubber protected nozzle	" "
Vacuum cleaner	" "
Clean pure cotton	" "
Alcohol	" "
Diesel Fuel	" "
Mild Shampoo	" "
Simoniz Wax	371800030
Compound Palinal 944	559500007
Glass cleaner without silicone	Not Available
Neutral soap for leather	" "
Water base cleaner for upholstery	" "

Ferrari



Service Bulletin

SB 90-6

12/28/84

SUBJECT: Cleaning of Parking & Directional Lenses
VEHICLES: All Models

SERVICE INFORMATION:

We wish to inform you that the material of our lamps lenses (Polymethyl Methacrylate) as a general rule will be damaged if put in contact with denatured alcohol.

In fact the contact of the alcohol will quickly make the lenses very brittle and cause cracks.

We, therefore ask you during the cosmetic preparation, to protect all lenses from the contact with alcohol.