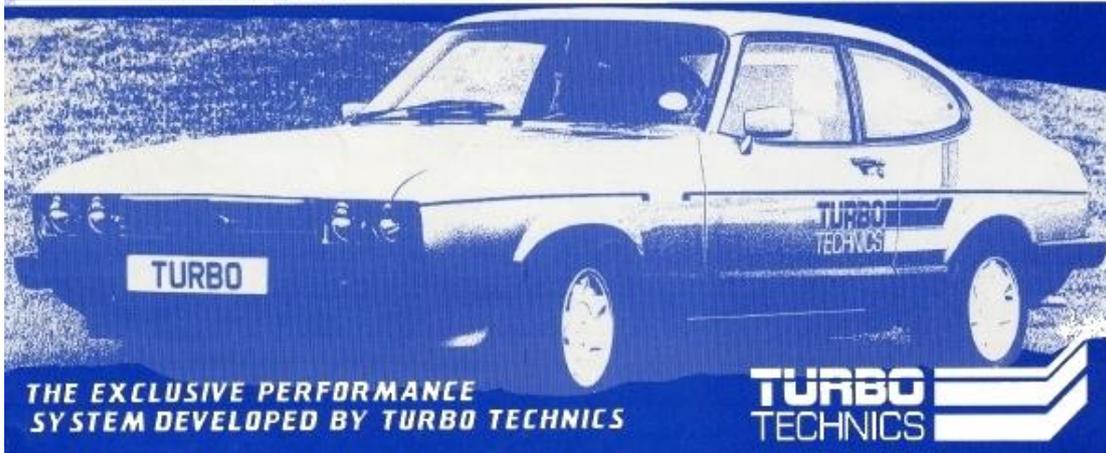


CAPRI V-6 2.8i TURBO



THE EXCLUSIVE PERFORMANCE SYSTEM DEVELOPED BY TURBO TECHNICS

TURBO TECHNICS

CAPRI V-6 2.8i TURBO

THE SOPHISTICATED PERFORMANCE DEVELOPMENT FROM TURBO TECHNICS

From the same stable as the well-renowned XR3i, the V-6 turbo systems employ the same design principles, and engineering expertise to produce a superbly balanced performance. Producing power at high speed is relatively easy, but the aim of the development programme was to build an engine which would also produce a high level of torque from very low speed. The key to achieving this is the exhaust manifold and Turbo Technics design expertise has produced a technically advanced pulse separation configuration, using a single turbo, in conjunction with the carefully matched Garrett T3 turbo-charger, excellent low speed response is achieved, with minimal 'turbo lag'.

The resulting engine not only gives an already good vehicle exhilarating performance, but does so in a totally fuss-free manner, with no perceptible transition to "boost" conditions. Economy is virtually unaffected, and intercooling coupled with a carefully integrated system ensures a very high degree of reliability, for which Turbo Technics have established a trend-setting reputation. A choice of power outputs is

available. The 200 BHP version uses standard compression ratio, and runs with standard transmission, although modified suspension and upgraded brake pads are recommended options. The more powerful 230BHP "Total Performance Package" includes upgraded transmission, modified suspension, and improved brakes. The extra power is achieved by lowering compression ratio, and using a higher boost pressure selectable whilst driving* to match performance to road conditions. *Patented.

The turbo system can be fitted in a few days at any of the Turbo Technics centres, and while careful servicing is required, this does not need to be carried out by specialists.

An engine/transmission warranty insurance is included, subject to mileage limitations.

Engine Power Output

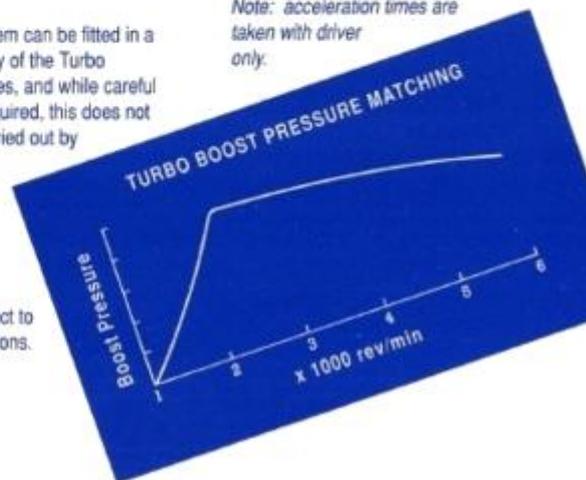
Maximum power
200BHP (149Kw) at 5,500 r/m
or 230 BHP (172 Kw) at 5,500 r/m
Maximum Torque
247 Lbf-Ft (320 Nm) at 3,800 r/m
or 280 Lbf-Ft (363 Nm) at 3,800 r/m

Typical Performance Figures

Capri	200 BHP	230 BHP
0-60 mi/hr	6.5	6.2
0-100mi/hr	14.8	13.0
Max Speed*	143 mi/hr	145 mi/hr

*on standard final drive.

Note: acceleration times are taken with driver only.



Turbocharger

Turbo Technics assembled Garrett T3 with integral wastegate pressure control. The turbo is mounted on the nearside with a link pipe carrying gas across from the off-side manifold.

Exhaust Manifold

Multi-branch manifold designed for pulse separation, cast in high nickel content iron.

Exhaust System

A new downpipe couples to the standard system in front of the main silencer box. An optional large-bore stainless steel system gives added power.

Air System

Air supply is through the standard air filter to the compressor, then cooled by a front-mounted intercooler before passing to the standard inlet.

Fuel System

The standard injection system is retained with minor modification.

Ignition

The standard high-energy electronic ignition is retained, with a modified characteristic incorporating a vacuum advance/pressure retard capsule. Wide heat-range spark plugs are employed, with silicon high tension leads.

Lubrication

An oil supply is taken from the main engine feed via aeroquip pipe to the turbo, returning to the sump.

Cooling

The standard radiator is retained.

Service

Apart from different spark plugs and ignition timing, servicing is unaltered.

Turbo Technics Ltd, 17 Galowhill Road, Brackmills, Northampton, NN4 0EE
Tel: (0604) 764005 Fax: (0604) 769668 Tel: Aldershot 0252 331251

230 BHP Total Performance System

Specification similar to 200 BHP system but in addition:

High capacity oil pump
Lowered compression ratio to 8.9 to 1
Selectable 2 level boost pressure
Up-rated gearbox (modified bearings and lubrication).

Braking System

4 pot calipers fitted to front axle.
284mm front ventilated discs.

Ferodo brake pads

Suspension

Modified bushes provide improved road holding and high speed stability.

**TURBO
TECHNICS**

Turbo Technics reserve the right to alter specification without prior notice.

This kit is identical to the famous kits we produced in the 80's and 90's, which, when fitted to the new Capri's would make 200bhp.

Producing power at high speed is relatively easy, but the aim of the development programme was to build an engine which would also produce a high level of torque from very low speed. The key to achieving this is the exhaust manifold and Turbo Technics design expertise has produced a technically advanced pulse separation configuration, using a single turbo. In conjunction with the carefully matched Garrett T3 turbocharger, excellent low speed response is achieved, with minimal turbo lag.

The resulting engine not only gives exhilarating performance, but does so in a totally fuss-free manner, with no perceptible transition to "boost" conditions. Economy is virtually unaffected, and an effective intercooler in conjunction with a carefully integrated system ensures a very high degree of reliability, for which Turbo Technics have established a trend-setting reputation.

The kit uses the standard compression ratio and runs with standard transmission and consists of a T3 turbocharger, manifold, intercooler, vacuum capsule, fuel enrichment air cone block, oil feed and return pipes, cross pipe and a down pipe from the turbo as well as all the pipe work and clips to plumb everything in. The only part not included from the original kit is the complete exhaust system - see figure 13 in drawings.

The Turbo system can be fitted in a few days by any competent DIY-er and does not need to be carried out by specialists. However, it is important that the engine is in good mechanical condition before the kit is installed, especially if it has covered high-mileage.

Engine Power Output.

Maximum power = 200BHP (149Kw) @ 5,500rpm

Maximum torque = 247 Lbf-Ft (320Nm) @ 3,800rpm

Typical Performance Figures

Capri	200BHP
0-60 MPH	6.5 seconds
0-100 MPH	14.8 seconds
Max speed	143 MPH on the standard final drive

The cost of the kit is £2500 + VAT. Your order will be taken with a 20% deposit.

CAPRI 2.8i TURBO

Service Bulletin

INTRODUCTION

The special edition Capri 2.8i Turbo follows the same turbo system layout as employed previously by Turbo Technics on this model, and is similar to that used on the XR4i, XR4x4 and Granada models.

The turbo system is based on the use of a single Garrett AiResearch T3 turbocharger mounted on the left side, with an air/air intercooler cooling the charge air prior to entering the engine. The basic engine remains standard.

Harder suspension location bushes are employed at key points, together with upgraded front brake pads. 4-pot front callipers and ventilated discs are available as an optional extra.

MODELS COVERED

Turbo system types: -

F9 - Turbo Technics 200 BHP (service details identical to f26)

ROUTINE SERVICING

Service intervals - 6,000 miles or 6 months.

12,000 mile (or 12 month) service -as Ford requirements, plus blow off the exterior of the intercooler with an air line. Check all pipes for tightness.

6,000 mile (or 6 months) service -as Ford requirements, plus change spark plugs.

SPARK PLUG TYPE

NGK - BCP6ES, gap 0.75mm.

IGNITION TIMING

12° B.T.D.C @ 900 rpm -vacuum disconnected.

NOTE: On no account should the engine be run under load with the vacuum pipe disconnected.

IDLE CO SETTING

1- 1.5% with the engine thoroughly warmed. Idle speed 900 rpm

ENGINE OIL

The use of synthetic or semi-synthetic oil is recommended for turbocharged engines Turbo Technics approves the use of Shell Gemini in the Capri Turbo.

FURTHER SERVICE NOTES

ENGINE

F9. The engine is unmodified except for the distributor advance capsule.

TURBOCHARGER

No servicing is required for the turbocharger. In the event of a turbocharger failure, it must be removed complete and replaced by a factory reconditioned unit. Only the pressure-controlling wastegate actuator can be replaced as a service item... **Do not attempt to dismantle the turbocharger as this will almost certainly cause damage.**

BOOST PRESSURE CHECK

Connect a suitable pressure gauge to the Inlet plenum at the multi-connection offtake. Run the vehicle on the road in 3rd gear at 3,000 rev/min using full throttle. Hold steady speed for a few seconds by braking with the left foot, and read the boost pressure. Repeat at 1,750 rev./min.

Pressures should be:

1,750 rpm: 3,000 rpm:

F9 0.25 bars (3.6 lbf/in²) min 0.40/0.45 bars (5.8/6.5 lbf/in²)

ACTUATOR REPLACEMENT

Check the actuator for free movement and diaphragm integrity by pressurising up to but not beyond the working pressure. There should be no leakage. To replace an actuator, fit the new unit and adjust the screwed rod-end so that it must be pulled out approximately 2mm to fit over the pin on the arm. Road test, as described above, and adjust the pressure as necessary; shorten the rod (1 turn at a time maximum) to increase boost, and lengthen to reduce. Lock the nut, and refit the E-clip.

FUEL SYSTEM

The fuel system is standard, except that a [profile block](#) is fitted to the air metering cone. However, the system is balanced to give matched flows from each injector. Injectors must always be kept in their respective positions, and if any component of the system is changed a flow check must be made.

With the air flap at full lift, the flow from each injector must be within 200/220 c.c./min.

IGNITION SYSTEM

The ignition system is standard except:

1. A vacuum advance/pressure retard capsule is fitted to the distributor. Retard should be 8/10° C.A. at 0.40 bars pressure at all speeds. Free movement of the base-plate should be checked.
2. An over-boost pressure switch is fitted in the inlet plenum to interrupt the ignition feed in the event of turbocharger control system failure.
3. Silicone ignition leads are fitted.

EXHAUST SYSTEM

The standard exhaust system is retained for the main run, including the two main expansion boxes, cut 520mm in front of these boxes, and a 2-section front pipe and Y-piece connects.

FAULT DIAGNOSIS - SYMPTOMS AND POSSIBLE CAUSE

LOW POWER

1.0 Check vehicle servicing:

Particularly check spark plugs, filters, valve clearances

2.0 Check boost pressure:

2.1 Low pressure at 1,750 rpm:

air leak

exhaust leak

intake blockage

throttle not opening weak mixture on load

damaged turbo

turbo wastegate not closing

2.2 Correct pressure at 1,750 rpm, but low pressure at 3,000 rpm:

wastegate actuator incorrectly set

3.0 Check ignition timing:

With vacuum disconnected:

Idle timing should be 12° B.T.D.C

Timing at 3,000 rpm should be 17/21° B.T.D.C.

4.0 Check fuel/air mixture:

Check injector flows as above

Check full-throttle CO on a rolling road -should be 3 - 5% between 3,000 rpm and 5,000 rpm

5.0 Check engine condition:

Normal condition check as described in the Ford service manual.

MISFIRING

1.0 Check vehicle servicing:

Check spark plugs - type and condition Check H.T leads -continuity and insulation Check H.T firing voltages

2.0 Check turbo boost at 3,000 rpm:

Over-boosting will cause intermittent cutting of the ignition supply.

DETONATION

1.0 Check fuel:

96 RON octane (4 star) minimum - NO LUBRICATING ADDITIVES

2.0 Check ignition timing:

With vacuum disconnected:

Idle timing should be 12° B.T.D.C.

Timing at 3,000 rpm should be 17/21° B.T.D.C.

Check for smooth advance action

3.0 Check ignition timing retard:

0.40 bars pressure on the distributor capsule should give 8/10° C.A. retard,

Check for smooth action

4.0 Check for over-boosting:

Boost pressure at 3,000 rpm too high

incorrect actuator setting

leaking actuator pressure pipe

perforated actuator diaphragm

sticking wastegate

5.0 Incorrect valve function:

Check valve seat condition

Check valve clearances.

Check cam timing

6.0 Oil pull-over:

Check compressor inlet and rocker cover vents for excessive oil flow

HIGH FUEL CONSUMPTION

1.0 Check part throttle CO:

CO at high idle (2,000- 3,000 rpm) should drop to below 0.50%. This with the vehicle stationary.

On rolling road test, steady CO readings should be less than 1% at off-boost conditions.

2.0 Check ignition timing:

Particularly check the function of the vacuum advance capsule.

3.0 Check engine conditions:

HIGH OIL CONSUMPTION

1.0 Oil smoke on full power: excessive ring wear damaged pistons damaged bores

2.0 Oil smoke on over-run: poor valve guide condition damaged stem seals.

3.0 Oil smoke at idle: damaged turbo seals

4.0 engine oil leaks: damaged pistons/bores blocked breather.

Parts List

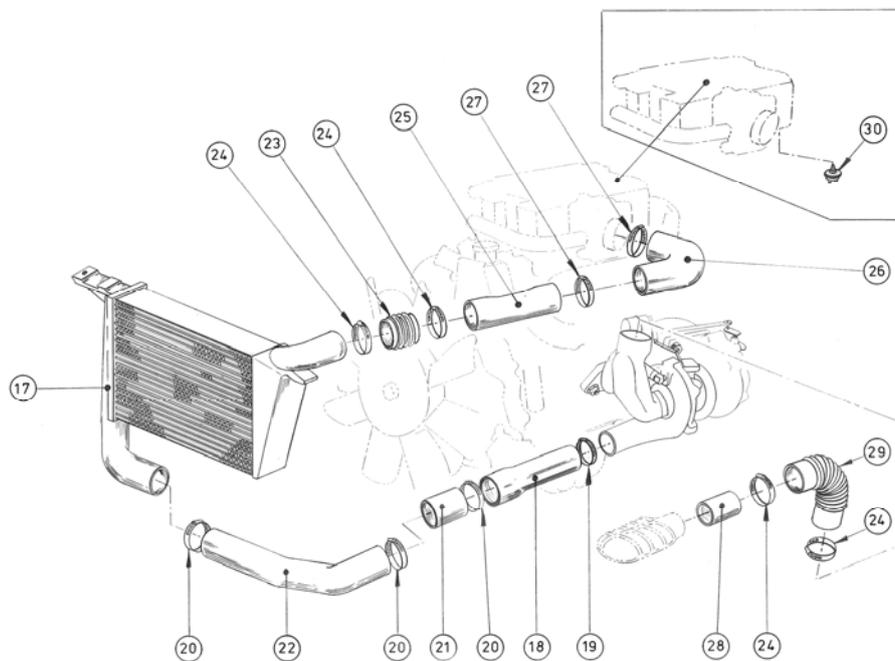
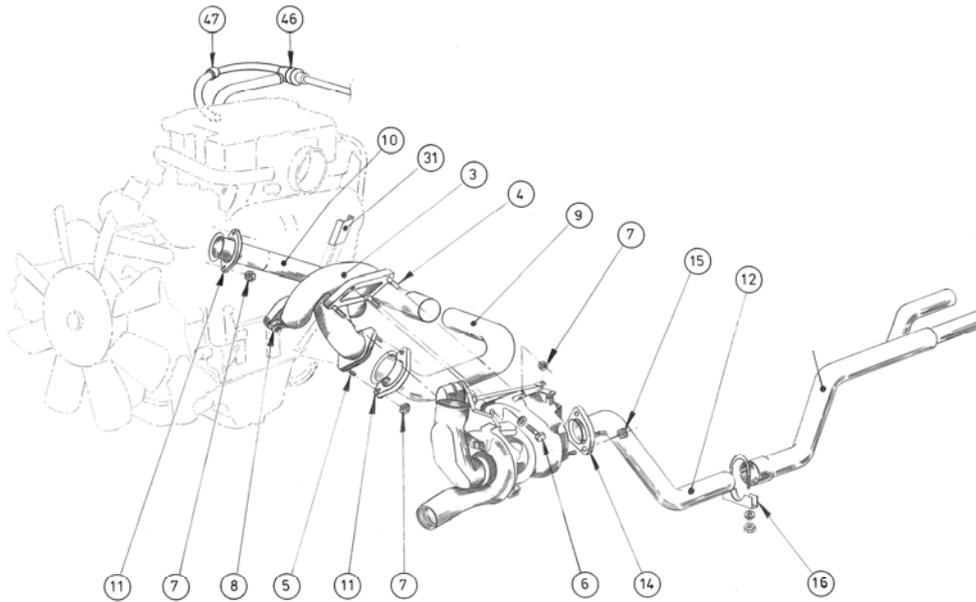
Item	Part No	Description	
1	TT076	Turbocharger assembly	
2	1892-50	Compressor inlet assembly	
3	1250-51	Exhaust manifold assembly	
4	S5025-1	Stud	
5	S5025-1	Stud	
6	BM1030S	Bolt	
7	S5006	Nut	
8	NM10SP	Nut	
9	1286-1	Exhaust cross-pipe - left bank	service as pair
10	1286-2	Exhaust cross-pipe - right bank	
11	-	Clamp flange - Ford original part	
12	1271	Exhaust front pipe	
13	1272	Exhaust centre pipe – NOT SUPPLIED IN KIT	
14	1043-12	Exhaust clamp flange	
15	NM08PH	Locking nut - high temperature	
16	6063	U-clamp	
17	1756	Intercooler assembly	
18	1763	Air pipe - turbo to front panel	
19	SGL 50-70	Hose clip	
20	SGL 50-70	Hose clip	
21	1601-100	Bulkhead connection	
22	1764	Pipe - front panel to intercooler	
23	6056	Convolutd hose connection	
24	SGL 50-70	Hose clip	
25	1261	Pipe - air inlet	
26	6055	Elbow – rubber	
27	SGL 60-80	Hose clip	
28	1191-1	Pipe - air meter outlet	
29	1579-360	Convolutd hose	
30	6028	Over-boost switch	
31	1290	Heat shield - plug lead	
32	1221-3	Oil feed pipe	
33	S5024	Banjo adapter	
34	PWM10C	Washer – copper	
35	S5034-1	Banjo	
36	6047	Adapter	
37	DW002	Washer – Dowty	
38	S5022-2	Banjo bolt	
39	1277-0	Oil drain pipe	
40	1905	Oil drain connection	
41	1276	Oil drain stub	
42	6010	Hose – silicon	
43	SGL 20-32	Hose clip	
44	BM0825	Bolt	
45	SWM08	Washer	
46	1906-2	Breather diverter valve	
47	6060	One way valve	
47	1297	Restrictor	
48	DHB 224	Ignition lead	
49	DHB 220	Ignition lead	
50	DHB 216	Ignition lead	
51	DHB 316	Coil lead	
52	1366	Vacuum capsule	

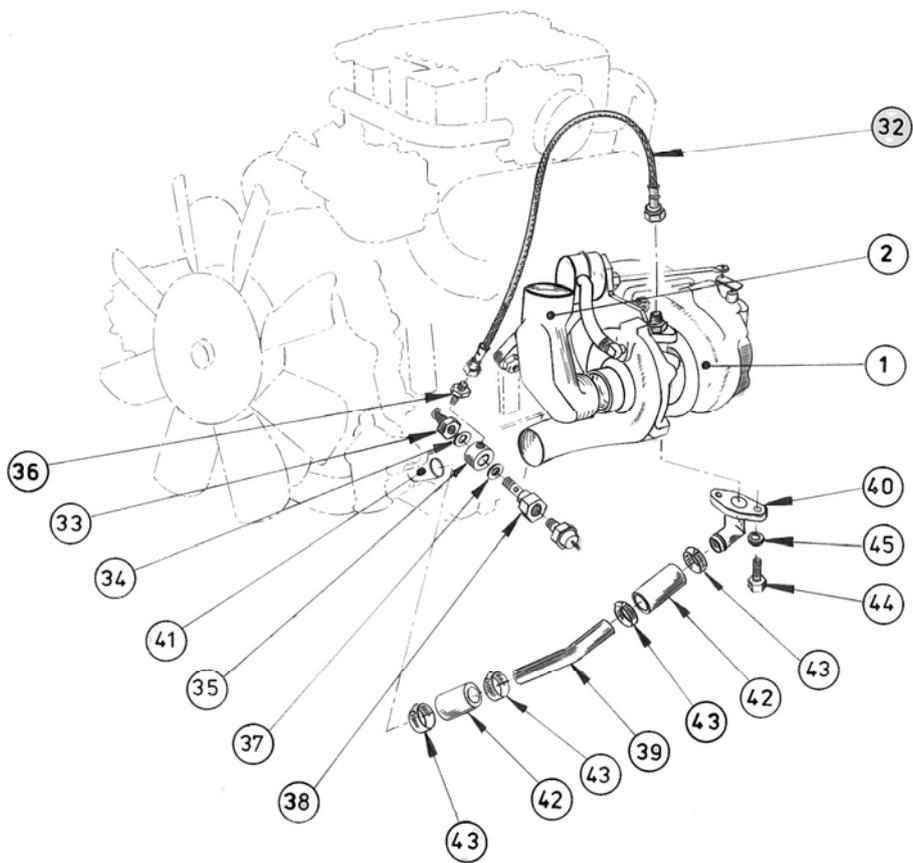
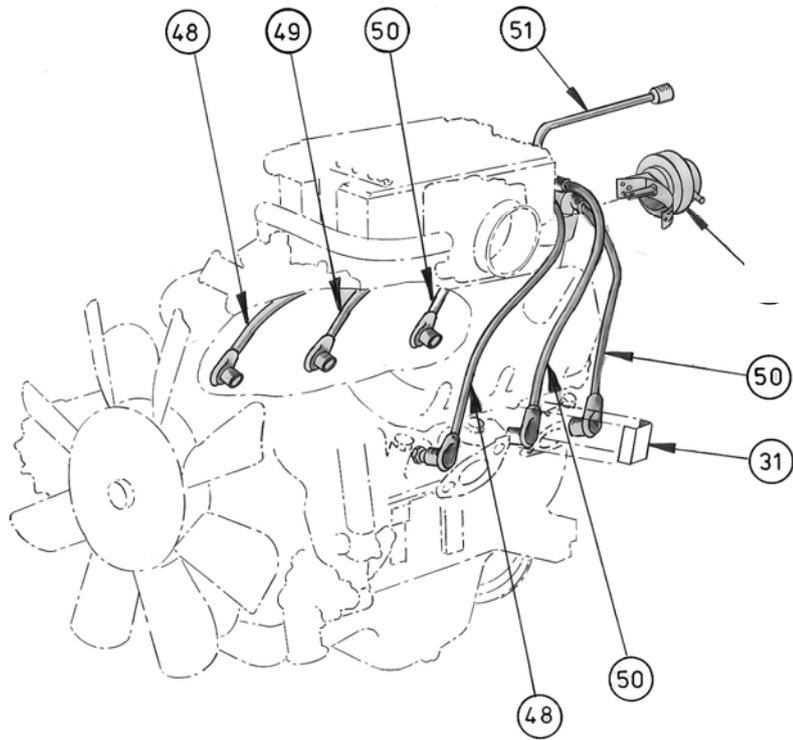
Brakes - Standard Calliper

6244	Brake pads Mintex
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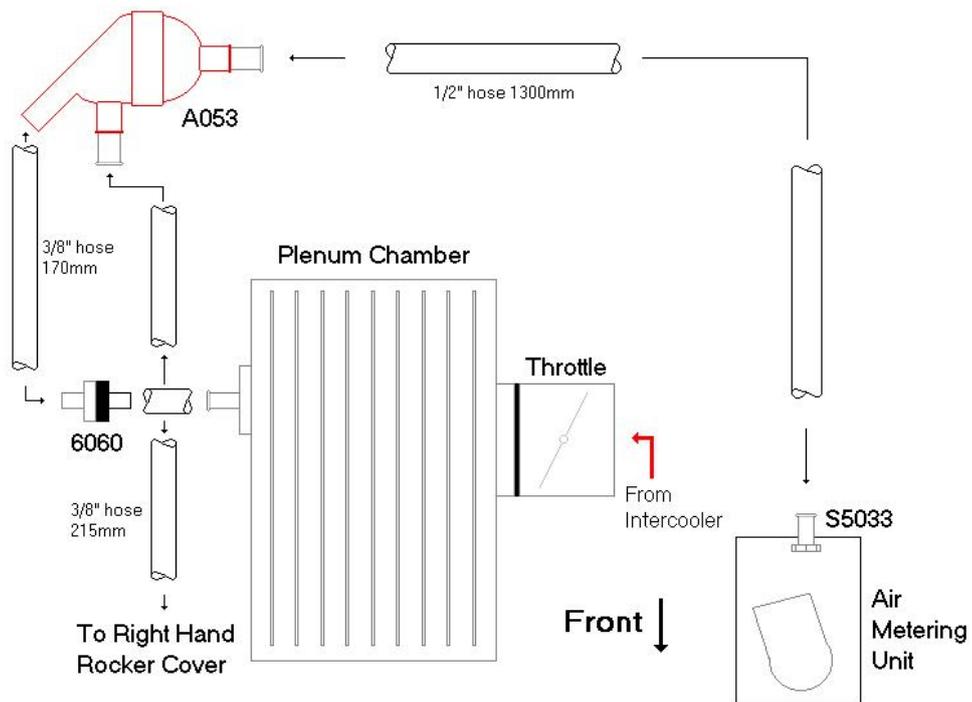
Brakes - 4 Pot Calliper

6243	Brake pad
6209	Brake disc
6206	Calliper assembly – left side
6207	Calliper assembly – right side
6208	Spacer washer (2 per side)
1907	Brake pipe





Breather System Diagram



Breather System operation

On Boost

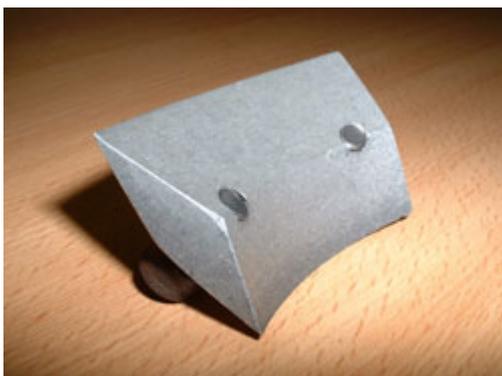
Valve 6060 closes. Engine breathes via valve A053 to air metering unit and hence to engine.

On Over-Run

Valve A053 closes. Engine breathes via by pass, through valve 6060 to plenum chamber.

Note: 3/8" hose from plenum chamber to valve 6060 must be secured with clips. Valve A053 is tie-wrapped to the brake pipes on the bulkhead.

Detailed below are the Miofiltre Valve and Fuel Enrichment (Profile) Block



CAPRI V6 2.8i TURBO

The exclusive performance system developed by Turbo Technics

From the same stable as the well-renowned XR3i, the V6 turbo system employs the same design principles, and engineering expertise to produce a superbly balanced performance. Producing power at high speed is relatively easy, but the aim of the development programme was to build an engine which would also produce a high level of torque from very low speed. The key to achieving this is the exhaust manifold, and Turbo Technics design expertise has produced a technically advanced pulse separation configuration, using a single turbo. In conjunction with the carefully matched Garrett T3 turbocharger, excellent low speed response is achieved, with minimum "turbo lag".

The resulting engine not only gives an already good vehicle exhilarating performance, but does so in a totally fuss-free manner, with no perceptible transition to "boost" conditions. Economy is virtually unaffected, and intercooling coupled with a carefully integrated system ensures a very high degree of reliability, for which Turbo Technics have established a trendsetting reputation.

The 200 bhp turbo engine uses standard compression ratio, and runs with standard transmission. The turbo system can be fitted in a few days at either Turbo Technics Northampton or Aldershot facilities, and whilst careful servicing is required, this does not need to be carried out by specialists.

Warranty for a period of 12 months an all Turbo Technics components is included.

Engine Power Output	Typical Performance Figures
Maximum Power	0 - 60 mph ~ 6.5 seconds
200 bhp (149Kw) @ 5,500 rpm	0 - 100 mph ~ 14.8 seconds
Maximum Torque	Maximum Speed ~ 143 mph
247lbs-ft (320Nm) @ 3,800 rpm	

Technical Specifications

Turbocharger

- Turbo Technics assembled Garrett T3 with integral wastegate pressure control. The turbo is mounted on the nearside with a link pipe carrying gas across from the off-side manifold.

Exhaust Manifold

- Multi-branch manifold designed for pulse separation, cast in high nickel iron.

Air Supply

- Air supply is through the standard filter to the compressor, then cooled by a front mounted intercooler before passing to the standard inlet manifold.

Fuel System

- The standard injection system is retained with minor modification.

Ignition

- The standard high energy electronic ignition is retained, with a modified characteristic incorporating a vacuum advance / pressure retard capsule. Wide heat-range spark plugs are employed, with silicone high tension leads.

Lubrication

- An oil supply is taken from the main engine feed via Aeroquip pipe to the turbo, returning to the sump.

Cooling

- The standard radiator is retained.

Service

- Apart from different spark plugs and ignition timing, servicing is unaltered.

