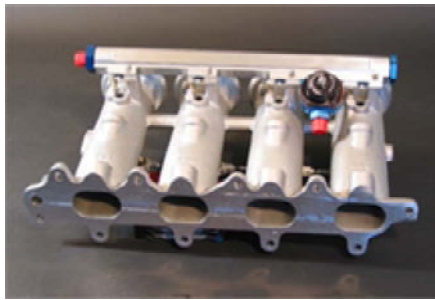




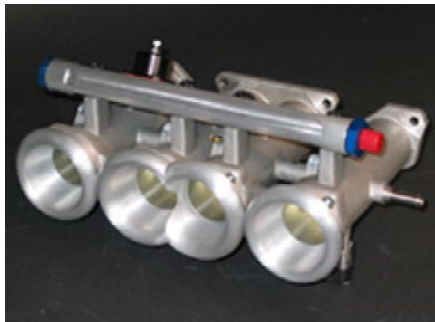
B18 Kit with Vacuum Accumulator



H22 Shown Without Injectors



Linkage

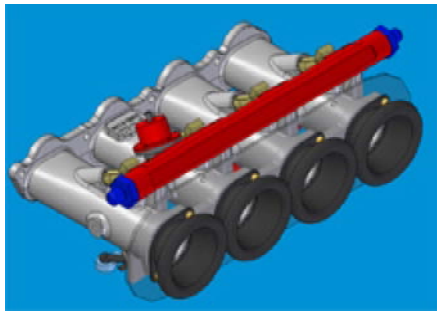


8 Valve VW Cross Flow Throttles ([More info!](#))

Part Number	Engine
*2000-0111/50/A *2000-0111/50/BB *2000-0111/50/C	B18C 50mm kit without injectors to fit stock type injectors** B18C 50mm kit without injectors to fit Bosch type injectors** B18C 50mm kit with Bosch competition injectors**
*2000-0111/52/A *2000-0111/52/BB *2000-0111/52/C	B18C 52mm kit without injectors to fit stock type injectors** B18C 52mm kit without injectors to fit Bosch type injectors** B18C 52mm kit with Bosch competition injectors**
*2000-0122/50/A *2000-0122/50/BB *2000-0122/50/C	B16A 50mm kit without injectors to fit stock type injectors** B16A 50mm kit without injectors to fit Bosch type injectors** B16A 50mm kit with Bosch competition injectors**
*2000-0122/52/A *2000-0122/52/BB *2000-0122/52/C	B16A 52mm kit without injectors to fit stock type injectors** B16A 52mm kit without injectors to fit Bosch type injectors** B16A 52mm kit with Bosch competition injectors**
*2000-0132/50/A *2000-0132/50/BB *2000-0132/50/C	H22 50mm kit without injectors to fit stock type injectors** H22 50mm kit without injectors to fit Bosch type injectors** H22 50mm kit with Bosch competition injectors**
*2000-0132/52/A *2000-0132/52/BB *2000-0132/52/C	H22 52mm kit without injectors to fit stock type injectors** H22 52mm kit without injectors to fit Bosch type injectors** H22 52mm kit with Bosch competition injectors**
*2000-0140/50/A *2000-0140/50/BB *2000-0140/50/C	Honda S2000 50mm kit without injectors to fit stock type injectors** Honda S2000 50mm kit without injectors to fit Bosch type injectors** Honda S2000 50mm kit with Bosch competition injectors**
*2000-0140/52/A *2000-0140/52/BB *2000-0140/52/C	Honda S2000 52mm kit without injectors to fit stock type injectors** Honda S2000 52mm kit without injectors to fit Bosch type injectors** [Dyno sheet available, Click Here] Honda S2000 52mm kit with Bosch competition injectors**
*2000-0142/50/A *2000-0142/50/BB *2000-0142/50/C	K Series 50mm kit without injectors to fit stock type injectors** K Series 50mm kit without injectors to fit Bosch type injectors** K Series 50mm kit with Bosch competition injectors** Will not fit Acura RSX without hood modifications.
*2000-0142/52/A *2000-0142/52/BB *2000-0142/52/C	K Series 52mm kit without injectors to fit stock type injectors** K Series 52mm kit without injectors to fit Bosch type injectors** K Series 52mm kit with Bosch competition injectors** Will not fit Acura RSX without hood modifications.
*2000-0133/45 *2000-0133/48	Mazda Miata 1800 through '98
*2000-0134/45 *2000-0134/48	Mazda Miata 1800 '99 on including Variable Valve Timing.
*2000-0135/45 *2000-0135/48	Volkswagen Series 3, 8 valve crossflow. Available Now!
*2000-0136/45 *2000-0136/48	Volkswagen 4-cylinder, 16 valve.
*2000-0137/50	Ford Zetec 2.0 This is made for the Caterham seven. Installation in a Focus will be difficult.
*2000-0141/45 *2000-0141/48	Toyota 4 AG-E with small port head. Available April 2005. (Can be ported to fit large port head.)

Toyota 2ZZ 1800cc DOHC

Owing to extreme installation difficulties, and the complex nature of this design, we have decided to remove this from our future products. It is possible to make throttles for the *ENGINE* but the installation in a Celica GTS is



16 Valve VW Kit
[\(More info!\)](#)

impractical.

*2000-0143/45
 *2000-0143/48

Ford Focus "Duratec" engines.
Limited availability now. Contact us.

*2002-0139/45
 *2002-0139/48

Nissan (Datsun) L28 6-cylinder engines. Kit has six separate throttles. **Available April 2005.**

*2002-0140/45
 *2002-0140/48

BMW M50 engines. Kit has six separate throttles.
Available now in limited supply.

2002-0141/40
 2002-0141/45

Triumph TR6. Kit has six separate throttles.
Available April 2005.

***Note:** These units are not designed to function with the stock electronics.

****Note:** Some engines will run with equipment such as V-Tec controllers—ask your engine builder.

AIR HORNS ?

VELOCITY STACKS ?

RAM TUBES ?

Whatever you call them, there is no doubt that TWM Induction has earned a world-wide reputation as a manufacturer of top quality air horns.

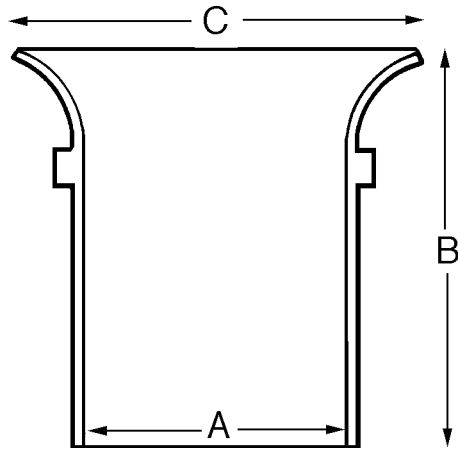
When we began the air horn manufacturing program in 1985, we had to develop our own manufacturing methods and our own design and test procedures. Little did we know that fifteen years later we would be celebrating wins at such prestigious races as the Daytona 24 hours, the Sebring 12 hours and the mother of all long distance sports car races the 24 hours of Le Mans.

Of course things have changed considerably in the comparatively short time of 13 years. Today we design and draw the horns on a CAD/CAM system and the tooling is made on CNC machinery which provides greater accuracy.

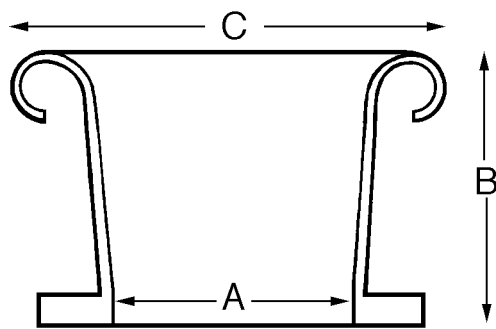
We design and manufacture air horns for many successful racing teams and engine manufacturers. Our design service is available to produce one off, prototype and production horns at reasonable prices

This is the 1999 catalog section, updated 02/18/00, dealing primarily with carburetor air horns and the various spinnings available. For air horns suitable for use with TWM throttle bodies please consult the TWM Fuel Injection section.

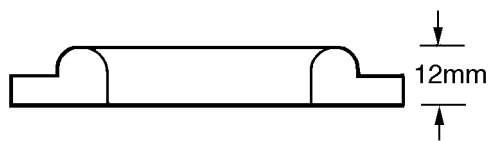
AIR HORNS, VELOCITY STACKS, RAM TUBES



Exponential type



Full Radius type



Shorty type

AIR HORNS, VELOCITY STACKS, RAM TUBES

Dellorto

	PART No	A	B	C	TYPE
All 45,48 DHLA & 45,48 DRLA	2719-4512	48	12	63	S
	2900-4835	48	35	88	FR
	2900-4850	48	50	88	FR
	2900-4865	48	65	88	FR
	2900-4875	48	75	88	FR
	2900-4890	48	90	88	FR
	2900-48100	48	100	88	FR
	2900-48115	48	115	88	FR

Minor mods needed for DRLA

SK Racing

	PART No	A	B	C	TYPE
40 mm	2719-4412	44	12	63	S
	2900-4450	44	50	88	FR
45 mm 47 mm 48 mm	2719-4512	48	12	63	S
	2900-4835	48	35	88	FR
	2900-4850	48	50	88	FR
	2900-4875	48	75	88	FR
	2900-4890	48	90	88	FR
	2900-48100	48	100	88	FR
	2900-48115	48	115	88	FR
50 mm	2900-5235	52	35	88	FR
	2900-5280	52	80	95	FR

Mikuni

	PART No	A	B	C	TYPE
40 PHH	2719-4412	44	12	6	S
	2900-4450	44	50	88	FR
44 PHH	2719-4512	48	12	63	S
	2900-4835	48	35	88	FR
	2900-4850	48	50	88	FR
	2900-4875	48	75	88	FR
	2900-4890	48	90	88	FR
	2900-48100	48	100	88	FR
	2900-48115	48	115	88	FR
50 PHH	2900-5235	52	35	88	FR
	2900-5280	52	80	95	FR

Solex

	PART No	A	B	C	TYPE
48 ADDHE	2900-4850	48	50	88	FR
40PHH	3001-45150	45	150	91	2xFR



AIR HORNS, VELOCITY STACKS, RAM TUBES

SU

Dimensions in inches for UK carbs and in mm for Japanese units.

	PART NO.	A	B	C	TYPE
1 1/2"	2700-3550	1.37	2.0	3.2	FR
	2700-3575	1.37	3.0	3.2	FR
	2700-35100	1.37	4.0	3.2	FR
1 3/4"	2700-4150	1.62	2.0	3.2	FR
	2700-4175	1.62	3.0	3.2	FR
	2700-4475 (HIF 6)	1.73	2.0	3.3	FR
	2700-4835 (Japan)	48	35	88	FR
	2700-4850 (Japan)	48	50	88	FR
2"	2700-5050	2.0	2.0	3.5	FR
	2700-5075	2.0	3.0	4.0	FR



Weber

	Part No.	A	B	C	Type
32/36 DGV/DGAV	3001-4050	40	50	133	FR
40 DCOE	2719-4012	40	12	63	SH
	2719-4020	40	20	57	EX
	2900-4035	40	35	80	FR
	2900-4050	40	50	80	FR
	2900-4075	40	75	80	FR
	2900-40100	40	100	80	FR
42 DCOE	2900-4250	42	50	80	FR
45, 48 DCOE (Not 48 DCO/sp)	2719-4512	48	12	63	SH
	2719-4520	48	20	60	EX
	2900-4830	48	30	88	FR
	2900-4835	48	35	88	FR
	2900-4850	48	50	88	FR
	2900-4865	48	65	88	FR
	2900-4875	48	75	88	FR
	2900-4890	48	90	88	FR
	2900-48100	48	100	88	FR
	2900-48115	48	115	88	FR
48 DCO/sp, 50, 55 DCO/sp					
	2900-5535	55	35	88	FR**
	2900-5560	55	60	120	FR

** Available summer 2000

Zenith-Stromberg

Dimensions in inches					
	Part No.	A	B	C	Type
150 CD	2710-3550	1.37	2.0	3.2	FR
	2710-3575	1.37	3.0	3.2	FR
175 CD	2710-4150	1.62	2.0	3.5	FR
	2710-4175	1.62	3.0	3.5	FR

Air Horn Spinings

without flanges, arranged in order of ID, in mm.

A	B	C	Type	Part No	A	B	C	Type	Part No
35	75	89	FR	2760-3575	48	50	88	FR	2960-4850
40	35	80	FR	2960-4035	48	90	88	FR	2960-4890
40	50	80	FR	2960-4050	48	100	103	FR	3066-48100
40	100	80	FR	2960-40100	48	115	88	FR	2960-48115
41	75	89	FR	2760-4175	50	50	88	FR	2960-5050
42	50	80	FR	2960-4250	50	100	104	FR	3066-50100
44	50	88	FR	2960-4450	50	115	120	FR	2960-50115
45	50	88	FR	2960-4550	52	100	106	FR	3066-52100
45	75	88	FR	2960-4575	54	100	106	FR	3066-54100
45	205	100	Exp	2720-45205	59	64	94	FR	2960-5964
46	50	88	FR	2960-4650	60	65	105	FR	2860-6065
46	100	100	FR	3066-46100	65	210	125	FR	3566-67215
48	35	88	FR	2960-4835	68	230	125	FR	3566-68230

Air Horns for Hilborn & Kinsler Throttles



"Siamesed" horn for 2.5" throttle

Hilborn 3001-65210/H

Kinsler 3001-65210/K

Installed length 7.25"



Single horn

2.625 throttles

3666-68230

2.250 throttles

3566-57230

TWM AIR BOX

Made exclusively for TWM this air box will serve several purposes:



Shown with backplate for carburetors

Dimensions

Inlet tube 3" (75mm)
Overall length 15.5" (394mm)
Depth 4.5" (114mm)

Provides a plenum for cold air, drawn through a remote filter system. Very important for efficient functioning of electronic injection systems.

Helps to reduce intake "roar".

Helps equalize distribution to individual intake runners.



Backplate for TWM throttle bodies

This unit fits under the fuel rails, eliminating the need for throttle body extensions.

ORDERING GUIDE

Air Box, with blank Backplate	2900-1575
Configure backplate to customers requirements	2960-1575

FUEL INJECTION

*What is **electronic** fuel injection?*

Basically, an **EFI** system works by delivering high pressure fuel to an electrically operated solenoid valve called an injector. The electronic control unit (**ECU**) receives information from a variety of sensors, in and around the engine and makes the appropriate adjustments to fuel delivery, to maintain perfect, pre-set air/fuel ratios, under all operating loads and RPM. The problem with original equipment **EFI** is that re-programming for non-standard applications involved creating a new chip for the **ECU**, a process beyond the capabilities of most engine tuners. Even if a modified chip was available commercially, it was still not possible to "tune" the injection system for further engine modifications.

During the last ten years, a number of programmable aftermarket injection systems arrived on the US market. These systems can be programmed "on line" by connecting them to a personal computer. They allow the tuner access to the fuel maps for idle, transition, wide open throttle, cold start, turbo boost enrichment and in some cases, ignition timing. Systems are also available which include a hand held programmer which enables the tuner to make adjustments to the fuel curve within certain parameters of a pre-set fuel curve.

Tim Suddard, owner and editor of ***Grassroots Motorsport Magazine***, writing in an article about EFI states the following major advantages:

- The extreme accuracy of fuel delivery by the ECU, at any load or RPM, provides the engine with air fuel mixtures that fall within a tiny window of accuracy required for maximum power, or maximum economy.
- EFI systems are not subject to the usual fuel surge and frothing associated with floats and float bowls in carburetors. One of the limiting factors in race car lap times has been the ability of the fuel system to deal with G forces. Gravitational forces in both horizontal and vertical planes have no effect on EFI systems.
- ECU control of air/ fuel ratios allows racing engines to safely operate nearer to the "ragged edge".
- PC programmable EFI can easily be adapted to suit future engine modifications as a vehicle evolves. Adjustments to fuel and ignition curves being as simple as making a few key strokes on a PC.
- EFI, generally permits greater flexibility of intake manifold design to achieve higher inlet air flow rates and consistent cylinder to cylinder air/ fuel distribution.
- More efficient, higher compression ratios usable, because of accurate fuel metering. This is especially the case with EFI units incorporating ignition control.
- When converting to forced induction, turbocharging or supercharging, EFI will enable the user to program boost-relative enrichment easily, usually leading to substantial power increases as a result of accurate fuel delivery.
- Most EFI systems compensate automatically for changes in altitude and ambient temperature. Calibrating a fuel system for a specific race venue is hardly necessary with EFI, if adjustments are to be made, a few key strokes on a PC are all that is necessary.
- Some EFI systems also have provision for a cockpit mounted mixture control with which the driver can vary the air/fuel ratio. TWM's **HALMETER AF30** is particularly useful for this purpose, providing a visual, on-board read out, of the air/fuel ratio, with its' 30 LED display.
- The solid state electronics in EFI systems are not susceptible to the mechanical failures associated with carburetors. Tuning parameters remain as programmed, with never any need to adjust for wear.

Why does TWM make throttle bodies ?

TWM was a manufacturer of intake manifolds, for competition style carburetors, such as the Weber DCOE series. When a number of programmable, fuel injection electronic control units (ECU's) became available in the performance aftermarket, it was obvious that many enthusiasts would want to convert from carburetors to injection. TWM throttle bodies permit the conversion to injection, of virtually any engine equipped with a suitable manifold. These individual runner systems are the best way to convert a competition engine to EFI.

What carburetors will TWM's throttle bodies replace ?

The DCO and DCOE series Webers, the PHH series Mikunis, the ADDHE series Solex, the SK racing sidedraft, the IDA (2 and 3 bbl) IDF and DCNF series Webers, and DRLA Dellortos.

Does TWM make other throttle bodies not intended for carburetor replacement ?

Yes, TWM manufactures some large bore single barrel units which have many applications and several throttle bodies for upgrading original equipment EFI systems including the "Big Throat" throttle bodies for Datsun Z cars. New for 1999 are several dedicated injection manifolds to convert engines to individual runner EFI for racing purposes.

Why don't TWM throttle bodies have venturis like carburetors ?

Carburetors rely on the pressure differential created by a venturi to draw fuel from the float bowl via the various jets and circuits. By their very nature these components cause a restriction to air flow, and contribute to pumping losses. The inevitable disadvantage of this system is that, while a venturi of a certain size may be necessary to provide low speed driveability it then acts as a restriction at high RPM. Because the fuel in an EFI system is injected under high pressure there is no need for any venturi. That is the reason throttle bodies flow so much more air than a carburetor of the same size and the reason that EFI systems can use larger throttles than the equivalent carburetors.

Why are the injectors positioned in the TWM throttle bodies and not in the manifolds, like original equipment EFI systems.

Original equipment EFI systems are configured to meet very stringent emission regulations and to provide "soft" driveability characteristics: Positioning the injector as close to the inlet valve is beneficial in this respect.

Maximum power however, is usually obtained by moving the injector away from the inlet valve, some racing engine manufacturers going as far as to mount the injector high in the velocity stack and others installing two injectors, designed to operate at different RPM. When TWM designed the throttle bodies, our engineers were not in favor of having high pressure fuel on the atmosphere side of the throttle plate, although this could have resulted in some power increase, so we compromised by mounting the injector as far from the cylinder head as possible while still maintaining the safety afforded by keeping the fuel downstream of the butterfly.

What do I need to install an EFI system on my car ?

You will need a suitable manifold, throttle bodies to suit your application, fuel rail kit, high pressure fuel pump, filter and regulator, appropriately sized injectors, a return line to the fuel tank or fuel cell and an aftermarket ECU. Most EFI kits are supplied with wiring harness, sensors and throttle position sensor. See opposite page for a diagram of a typical setup.

So can I swap my carburetors for throttle bodies with no modifications to my manifold and linkage ?

TWM throttle bodies will fit your aftermarket manifold with no modifications but the throttle linkage geometry will change because the throttle shafts are positioned differently in the throttle bodies.

If TWM went to the trouble of making throttle bodies to fit in place of carburetors, why didn't they retain the original carburetor linkage geometry ?

This relates back to the question on injector position. To achieve the correct angle of the injector relative to the throttle bore and to keep the throttle plate upstream of the high pressure fuel, we had no alternative but to position the shaft where it is.

Can this equipment be installed by a home mechanic ?

Because EFI systems use fuel at high pressure and because they are different from the fuel systems with which most enthusiasts have experience, we recommend professional assistance.

What will it cost ?

See facing page.

TYPICAL FUEL INJECTION SYSTEM

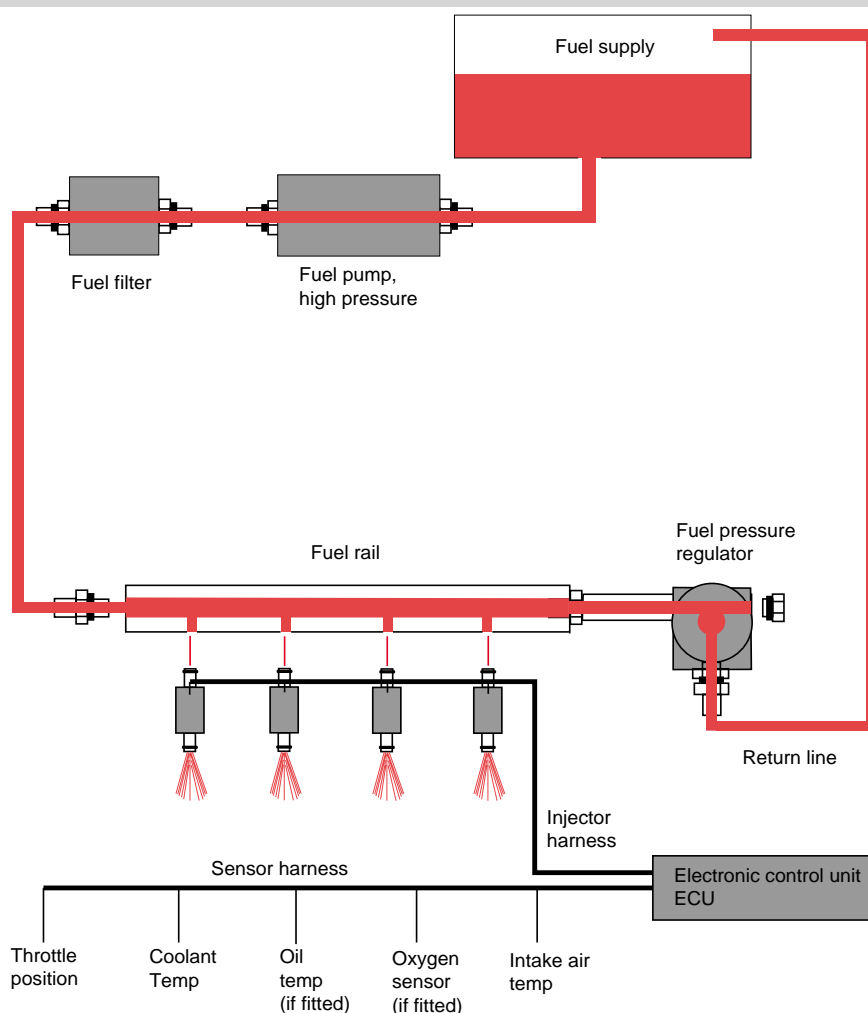
NOTES

(a) Except when mounted in the fuel tank, fuel pumps should always be mounted below the level of the fuel.

(b) Calculate the fuel flow requirements of the engine, by estimating BHP and BSFC (brake specific fuel consumption, usually shown in pounds of fuel consumed, per horsepower/per hour). This will provide a guide as to how much fuel pump capacity you will need. See page 22 for information on fuel pump choices and page 23-25 for injector size charts.

(c) Capacity of the fuel rail is important to provide adequate volume of fuel for rapid acceleration and to provide damping of transitory pulses caused by the opening and closing of the injectors.

(d) TWM fuel pressure regulators should always be installed downstream of the injectors.



What will it cost ?

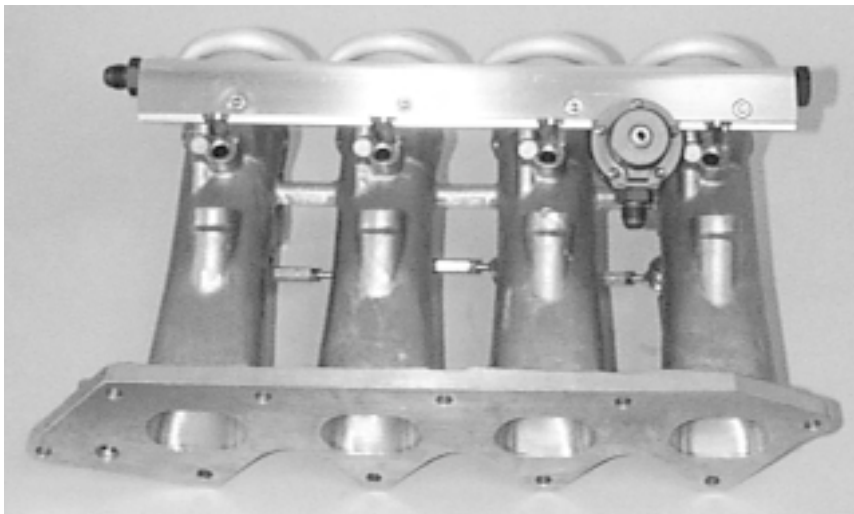
Here is a price guide to injecting a typical four cylinder engine. This list excludes the cost of plumbing a vehicle, which was not fitted with OEM injection and excludes the price of an aftermarket ECU.

Manifold	300								
Throttle body LH		297							
Throttle body RH		297							
Fuel rail kit			165						
Air horns(4)				200					
TPS					65				
Plug for TPS						11			
Injectors(4)							380		
Fuel pump & fittings								380	
Regulator									225
Air Box and filter									350
Prices as at 1/1/99	300	894	1059	1259	1324	1335	1715	2095	2320
									2670

SERIOUS PERFORMANCE FOR TODAY'S ENGINES

2000 SERIES

Designed with the serious motorsport enthusiast in mind, the 2000 series brings the advantages of individual runner performance potential, to many of today's, high output small engines, including Acura (B18C), Honda (B16A), Mazda Miata 1600 and 1800 and the Series 3 VW (water cooled) engine. Each runner is a straight shot to the cylinder head, where it joins the port at the optimum angle, for maximum air flow.



n 48 or 50 mm throttles available.

n Two alternative injector positions enable engine builders to tune for power band requirements and, if necessary run eight injectors.

n TWM fuel pressure regulator will flow up to 700 lb/hr.

n Can be CNC ported to non-stock port sizes, at extra cost.

See pages 18-19 for air horn selection.

ORDERING GUIDE

Engines with B18 C cylinder heads (Acura GS R etc.).....	2000-0111/48 2000-0111/50
Engines with B16 A cylinder heads (Del Sol & Acura Type R).....	2000-0122/48 2000-0122/50

The following are projected for 1999:

Honda H22 engines	Available summer 1999
Mazda Miata 1600	Available summer 1999
Mazda Miata 1800	Available summer 1999
Volkswagen Ser 3	Available summer 1999

SPECIFICATIONS

Weight , including 4 injectors, air horns and linkage	2.8 kg 6.2 lb
---	------------------

Length , overall including 50 mm air horns	250 mm 9.84 in
--	-------------------

INJECTION THERAPY for SU & ZENITH-STROMBERG

2700 SERIES, 2710 SERIES

Designed to replace SU and Zenith Stromberg carburetors, these throttle bodies provide all the features you expect from a modern, electronic fuel injection system:

- Horsepower
- Economy
- Clean emissions
- Good driveability
- Excellent cold start



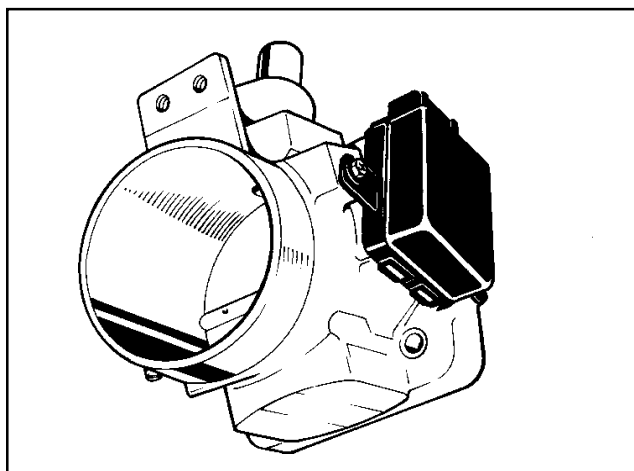
- Dimensionally similar to the original.
- Accept the original air cleaner assembly.
- Incorporate a fuel pressure regulator.
- Require relatively low fuel pressure.
- Install on the original inlet manifold.
- Accept the original throttle linkage with minimal modifications.

ORDERING GUIDE

*At press time, no kit numbers had been assigned.
We apologise , for this project running about a year behind its projected completion date.*

HIGH PERFORMANCE REPLACEMENT THROTTLE BODIES

2800 SERIES FOR DATSUN 280Z & ZX



These 60mm throttle bodies are designed to replace the original equipment units on Datsun 280Z and ZX.

Dynamometer tests have shown improvements in torque and horse power in the mid and higher engine RPM ranges on otherwise stock engines.

We do recommend minor modifications to the stock inlet manifolds to maximize the performance potential of these units.

When used in conjunction with other engine modifications these "Big Throat" throttle bodies will show substantial power increases, albeit, at the expense of their intended street legal status.

When installing the Datsun throttle body, it is necessary to transfer the by-pass screw and spring from the stock unit.

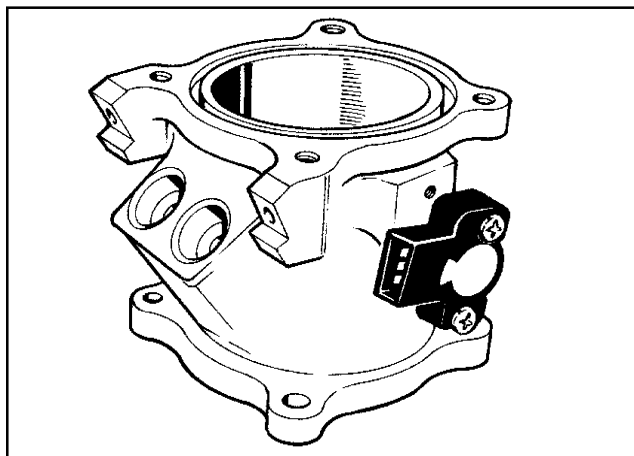
ORDERING GUIDE

Part No **2800-0001**
Part No **2800-0002**

Datsun 280 Z from 1975 thru 1979
Datsun 280 Z and ZX from 1979

SINGLE BARREL THROTTLE BODIES

2805 SERIES (formerly 3005 series)



Available in stock sizes of 65mm, 70mm and 80mm, this unit has provision for two injectors side by side, both of which can be plugged if not used.

Created to satisfy demand for a large single barrel throttle body, these units will fill the need for "air door" type throttles for plenum or tunnel ram manifolds, where the injector facility can be used for high speed or turbo enrichment. They also can be ganged together, to provide "straight shot" individual runner injection for a variety of large V8 engine layouts.

There are integral mounts for the fuel rail which is supplied with the unit. AN-6 threads are in each end of the rail for which a specific fitting, part number 2900-9206, is available.

In standard form these units cannot be mounted at less than 110mm centers.

<i>Dimensions</i>	<i>in</i>	<i>mm</i>
<i>Height</i>	3.86	98
<i>Width</i>	4.65	118
<i>Bottom flange PCD</i>	4.17	106
<i>4 x 8mm</i>		
<i>Top flange PCD</i>	4.17	106
<i>4 x 6mm</i>		

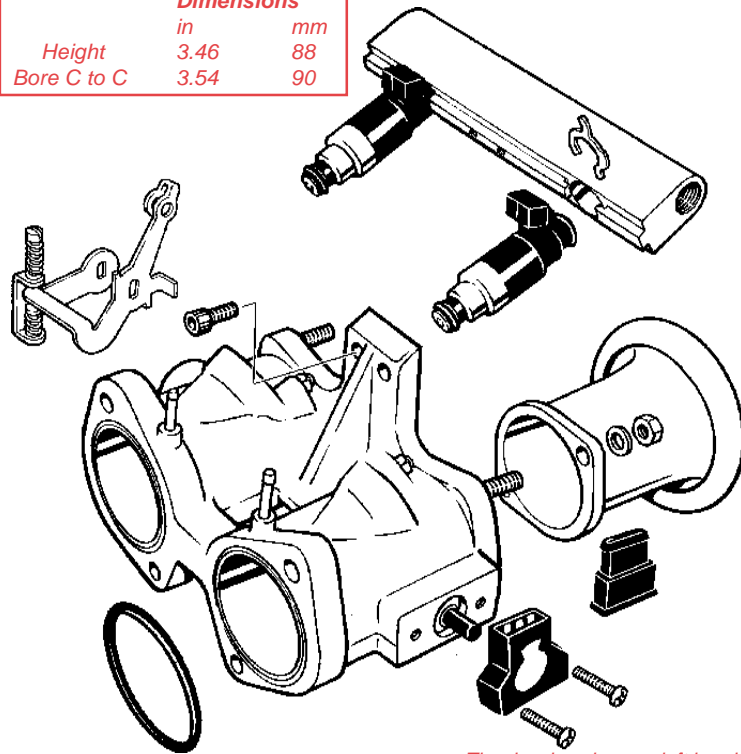
ORDERING GUIDE

These units are designated "front, center and rear" to distinguish their respective linkage layouts. the "front" unit incorporates a shaft with a single 5/16" D drive and mounting pad for TWM and other throttle position sensors. The "center" unit has interconnect linkage on both ends of the shaft and the "rear" unit has an interconnect which interfaces with the center units. A typical part number would be 2805-6502/F where 2805 is the series number, 6502 indicates a 65mm bore with two injectors and F indicates a TPS drive.

DCOE STYLE THROTTLE BODIES

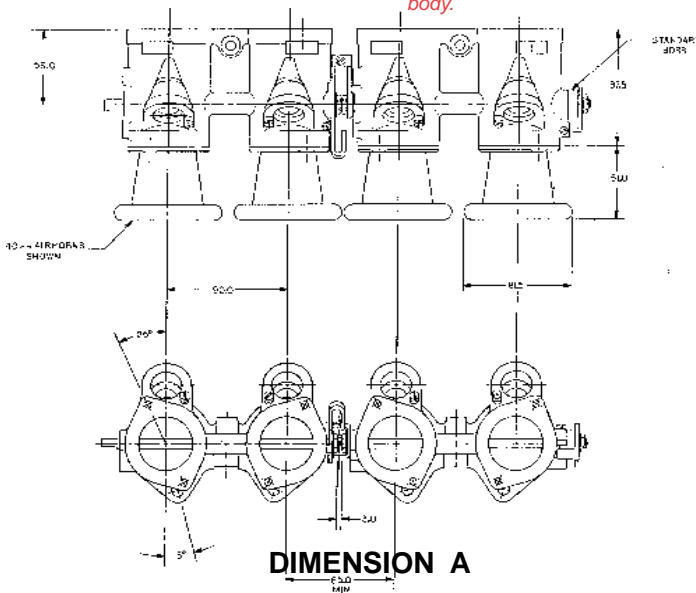
2900 SERIES, 2910 SERIES

Dimensions		
	in	mm
Height	3.46	88
Bore C to C	3.54	90



TWM throttle bodies are equipped with pockets for standard Bosch, Lucas, Rochester or Weber injectors, using an 'O' ring, top and bottom. 48 and 50mm units may be ordered with two injectors per barrel. In the sidedraft configuration the additional injectors mount on the bottom of the throttle body.

*The drawing shows a left hand DCOE type throttle body with mountings for a throttle position sensor (TPS). Also shown are the extension horn, necessary if a filter is to be mounted outside of the fuel rails, and a TWM air horn. Please note, the extensions, air horns, fuel rails and TPS are **not included** with the throttle body.*



ORDERING GUIDE

A typical DCOE type throttle body would have a part number like **2900-4502**. Where 2900 is the DCOE series, 45 is the bore size in mm and 02 represents two injectors per unit, or one per barrel. 2910 series are available in 40, 42 and 45mm sizes.

TWM 2900 series throttle bodies are a direct replacement for the following sidedraft carburetors: Dellorto DHLA, Mikuni PHH, SK Racing, Solex ADDHE, Weber DCO and DCOE, all available in the following sizes: 40, 42, 45, 48, 50mm and 55mm to special order.

TWM DCOE type throttle bodies are supplied with a center compensating linkage which connects the two throttle shafts allowing adjustment for balance.

Where the center to center distance between the barrels of cylinders 2 and 3 (on a 4 cyl engine) is less than 97mm, use left hand unit 2910 series (see below).

A fuel rail kit, adjustable for different manifold layouts, attaches to integral mounting points. (see page 12).

Each barrel has a by-pass screw, for idle speed and air flow adjustment.

The left hand unit, incorporates a 5/16" 'D' drive and mounting bosses for **TWM** and other throttle position sensors.

'O' rings are supplied for the manifold/throttle body interface.

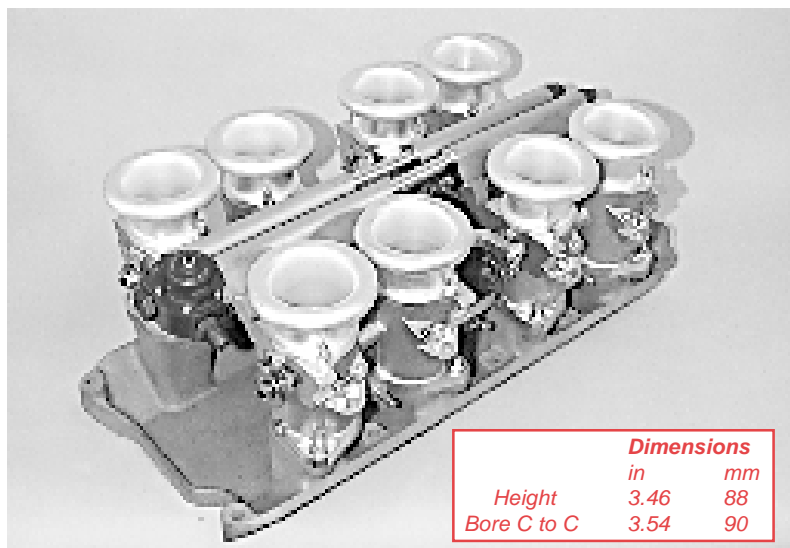
Ports are provided, in each barrel, for connection to a MAP sensor. MAP = Manifold absolute pressure.

TWM 2910 series throttle bodies are engineered for today's smaller engines where space is limited **between** the units. Available only in **left hand** configuration these throttle bodies are used in conjunction with a right hand **2900** series to make up a dual installation.

When selecting suitable units for a particular installation the manifold runner spacing should be measured: if **dimension A** (see drawing) is less than 97mm the **2910** series throttle body should be ordered as the left hand unit. **2910** series throttle bodies are available in 40, 42 and 45mm bore sizes. By reducing the throttle shafts and nuts, a center to center dimension of 83mm can be achieved.

IDF STYLE THROTTLE BODIES

2930 SERIES



IDF throttle bodies are compact downdraft 2 BBL units, equally at home on a V8, or VW and Porsche, air cooled, 4 cylinders.

They are available in 40, 45, 48, 50 and 55mm bore sizes, with bosses for four injector mounting positions. TWM machines all four of the injector pockets during manufacture, supplying two precision turned blanking plugs for the unwanted pockets.

TWM offers small block Ford V8 manifolds, for use with 2930 series throttle bodies. See page 11 for V8 applications using IDF throttle bodies.

ORDERING GUIDE

The left hand unit has a 5/16" D drive for a throttle position sensor. The right hand unit is supplied with the throttle shaft threaded at both ends.

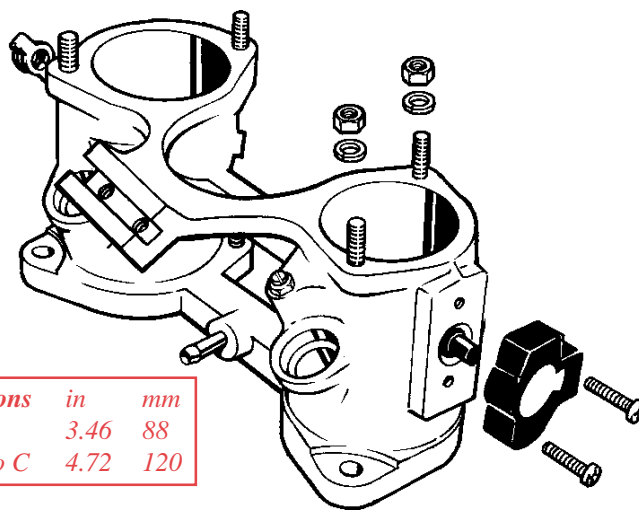
A typical part number for the 2930 series would look like this: **2930-4804 / L**, where **48** is the throttle plate diameter and **L** refers to left hand or switch drive unit. As all 2930 units are delivered with four injector pockets, TWM supplies two injector pocket plugs with each unit.

IDA STYLE THROTTLE BODIES

3000 SERIES

TWM, 3000 SERIES THROTTLE BODIES are designed to replace the old 48 IDA carburetor which, for many years, was the carburetor of choice for those seeking the ultimate in V8 and rotary engine fuel systems.

3000 series are available in 48, 50 and 55mm bore sizes. Because of differing manifold layouts, the 48 and 50 mm units are available with the injector pockets on either the wide or narrow side of the mounting stud pattern. The 55mm units are manufactured with four injector pockets. See page 11 for V8 kits with IDA throttles.



ORDERING GUIDE

The left hand unit has the 5/16 D drive, for a throttle position sensor. The right hand, unit is supplied with the throttle shaft threaded at both ends.

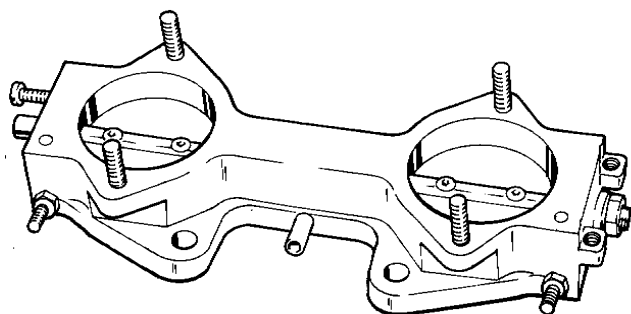
A typical part number for the 3000 series would look like this: **3000-4802 / R**, where **48** is the throttle plate diameter, **02** refers to the number of injector pockets in the unit (ie one per barrel), **R** refers to right hand or non-switch unit. suffix-W would be added for pockets on the wide side of the mounting flange, -N for pockets on the narrow side.

As all 55mm units are delivered with four injector pockets, specify left or right.

IDA STYLE THROTTLE PLATES

3002 SERIES

Dimensions	in	mm
Height	1.2	30
Bore C to C	4.72	120



Designed with the same base flange dimensions as the 48 IDA Weber carburetor and with an overall height of 1.2", this unit has been created specifically for use where space is at a premium and/or where it is desirable to mount the injectors in the manifold. There is no provision for injectors to be mounted in this unit.

Machined from 6061 T6 billet, the throttle body features a stainless shaft, MAP sensor port, by-pass screws and a drive for TWM'S throttle position sensor.

Rotation can be clockwise or anti-clockwise, a feature which will make linkage simpler to design and manufacture.

TWM air horns will install directly on this unit.

ORDERING GUIDE

Part No **3002-5000**
Part No **3002-5000**

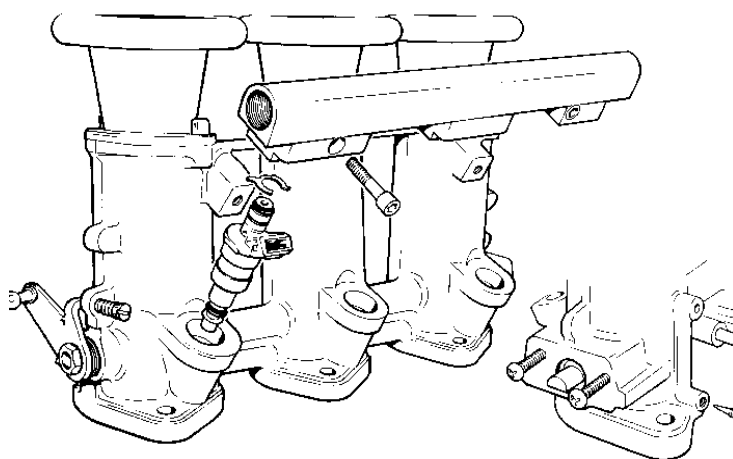
Left-hand or switch drive unit
Right- hand, shaft threaded both ends

IDA, 3 BARREL STYLE THROTTLE BODIES

3003 SERIES

TWM 3003 series units are a **direct replacement for downdraft IDA 3C carburetors**, as fitted to early Porsche 911, Ferrari 512 and Lamborghini models. The barrel centers are at 94mm and the overall height is 123.5mm. The manifold mounting flange is identical to the flange on the Weber IDA 3C. The air filter flange differs from the carburetor in that it uses 6mm studs which are 1mm further apart than the carburetor.

Each barrel has an **air by-pass screw**. **MAP sensor ports** are provided on both units. There are **integral mounts** for the **fuel rail** which is supplied with the unit. AN-6 threads are in each end of the rail for which a specific fitting, part number 2900-9206, is available.



Please note the 3003 series is the only TWM throttle body where 'left' does not indicate the switch drive unit.

The right hand unit incorporates a shaft with a single 5/16" D **drive and mounting pad for TWM and other throttle position sensors**. Air horns are not supplied with the throttle bodies. Horns 50mm long are available for all bore sizes. In addition, horns 35mm, 75mm, 90mm, 100mm and 115mm are available for the 48mm.

ORDERING GUIDE

Order by series number, bore size and whether left or right example: 3003-4403/L where 3003 is the series, 44 is the bore size in mm, 3 is the number of injectors, left indicates shaft without TPS drive.

DCNF STYLE THROTTLE BODIES

3004 SERIES

TWM 3004 series are a direct replacement for the DCNF carburetors fitted to Ferrari, Maserati and Aston Martin in addition to having a number of aftermarket applications.

The unit is extremely compact with barrel centers at 48mm and an overall height of 86mm. The manifold mounting and air cleaner flanges are identical to the DCNF carburetor.

TWM DCNF throttle bodies are equipped with pockets for Bosch, Lucas and Weber injectors, using an O ring top and bottom.

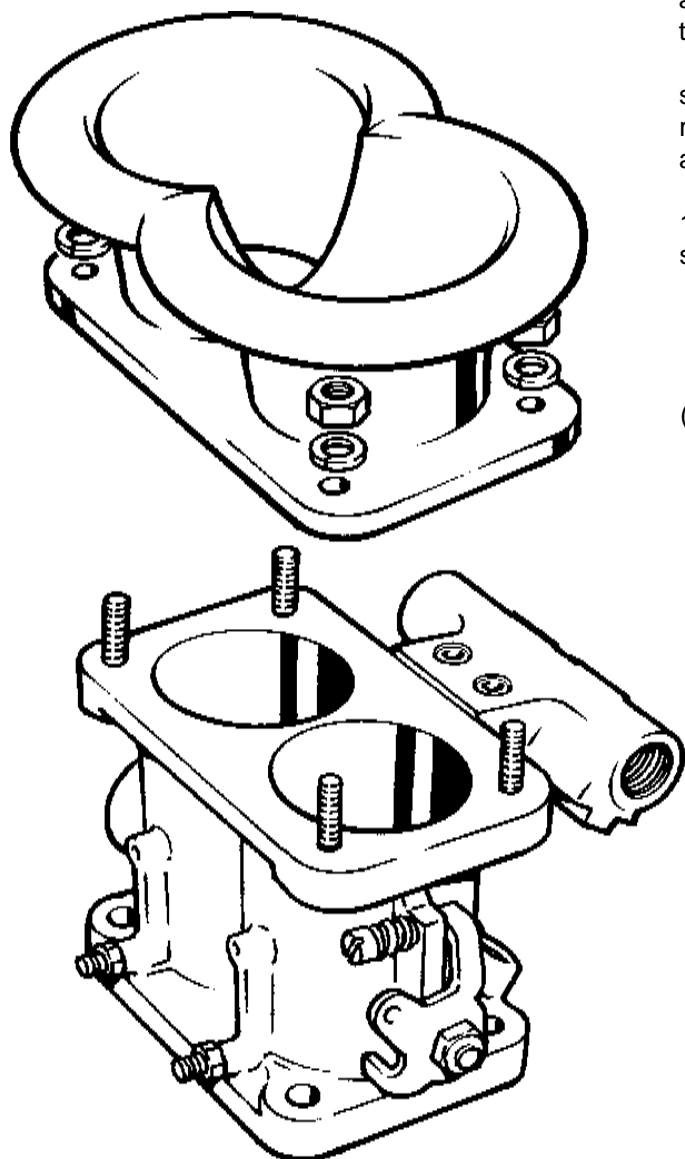
Each barrel has an air by-pass screw, for idle speed adjustment without disturbing the zero setting of the throttle position sensor.

There are integral mounts for the fuel rail which is supplied with the unit. AN-6 threads are in each end of the rail for which a specific fitting, part number 2900-9206, is available.

The left hand unit incorporates a shaft with a single 5/16 D drive and mounting pad for **TWM** throttle position sensors.

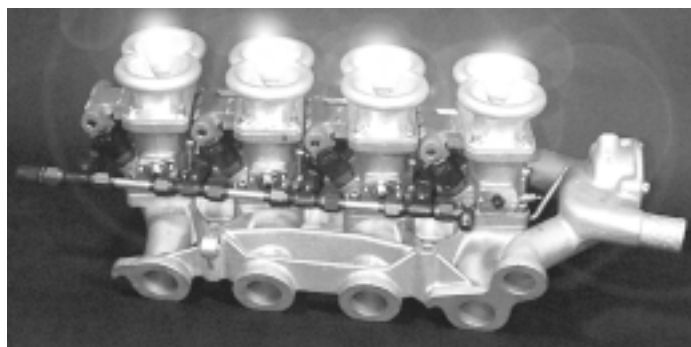
Air horns are not supplied with the throttle bodies.

Horns 50mm long are available for all bore sizes (40mm, 44mm, 46mm).



Dimensions	in	mm
Height	3.46	88
Bore C to C	1.889	48
Bottom flange	3.35 x 2.04	85 x 52
Top flange	3.8 x 1.88	96 x 48

Rochester injectors are too long for use in these throttle bodies.

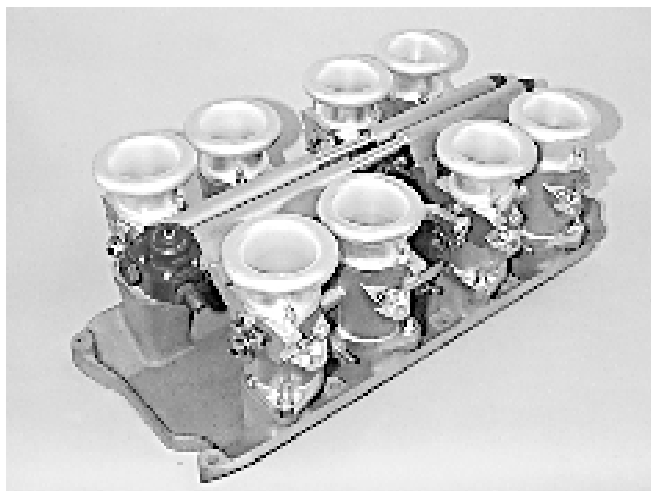


Maserati Bora manifold with four DCNF throttles.

ORDERING GUIDE

Order by series number, bore size and whether left or right example - 3004-4402/L where 3004 is the series, 44 is the bore size in millimeters, 2 is the number of injectors, left indicates shaft with TPS drive.

KITS FOR V8 APPLICATIONS



Many of our customers have asked us for a properly integrated linkage to fit with our V8 manifolds.

After much deliberation, we decided to develop a cable unit which would fit inside the V and be, at least partially, concealed by the fuel rails.

Constructed from 6061-T6 billet this linkage kit is the neatest and most efficient way to open and close the throttles on one of our V8 manifolds.

The standard cable length is 3 feet but a 12 foot cable is available for rear and mid engine installations.

TWM now supplies complete throttle body kits which include the following parts:

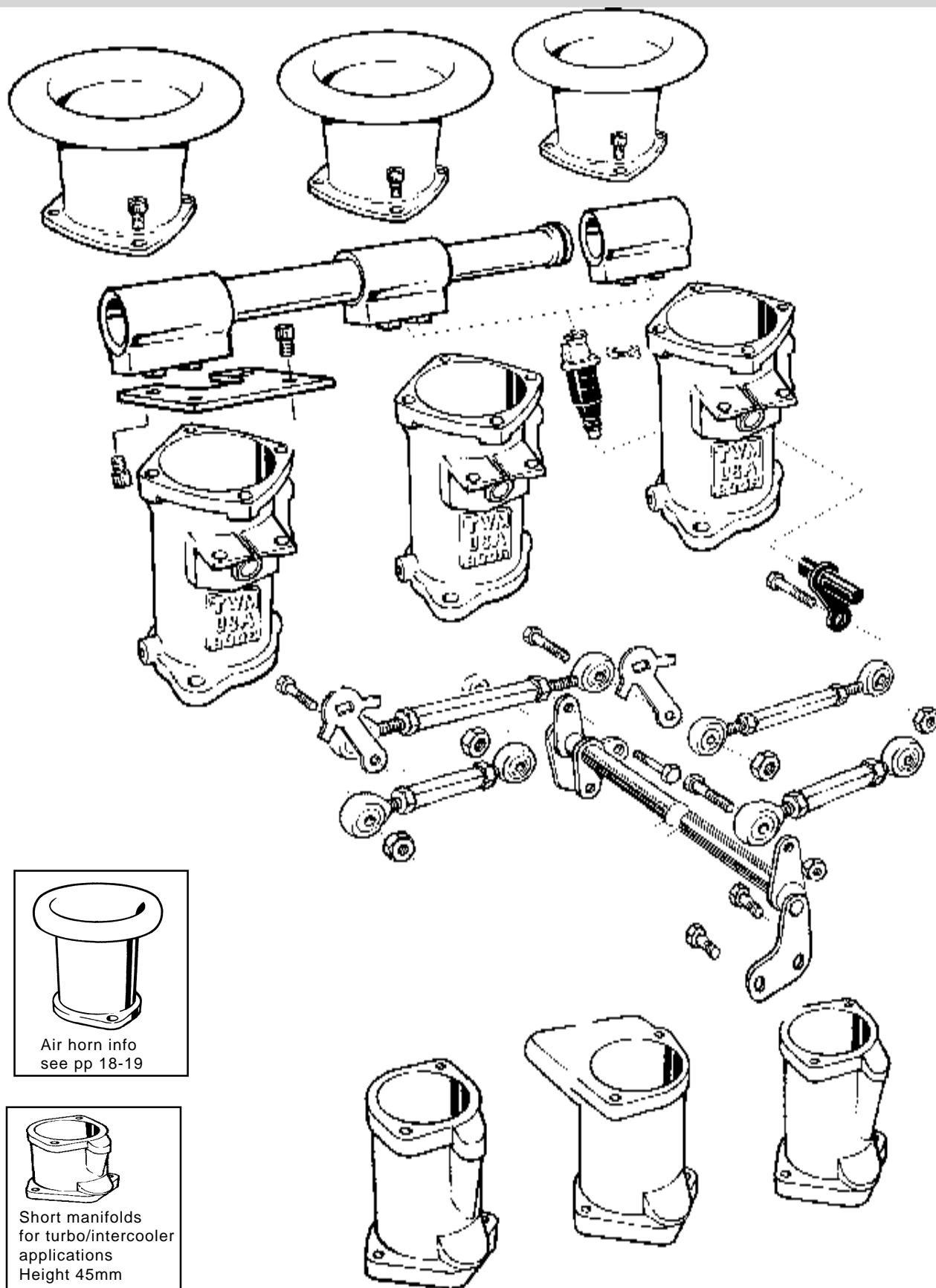
- n Four throttle bodies
- n Inlet manifold
- n TWM Cable linkage kit with 36" cable
- n Fuel rail kit with AN fittings
- n Rail mounted fuel pressure regulator
- n Air horns 50mm tall
- n One piece JC 74 air filter
- n Air filter backplate and body extensions

ORDERING GUIDE

Engine Type	Type	Part No 48mm	Part No 50mm
Chevrolet small block 283-350 ci	IDA	3000-2121/48	3000-2121/50
Ford small Block 289-302 ci	IDF	2930-2122/48	2930-2122/50
	IDA	3000-2128/48	3000-2128/50
	IDA	3000-2123/48	3000-2123/50
Ford Windsor 351 ci	IDA	3000-2123/48	3000-2123/50
Ford Big Block 425-428 ci	IDA	3000-2124/50	3000-2124/55
	IDA @10°	3000-2125/50	3000-2125/55

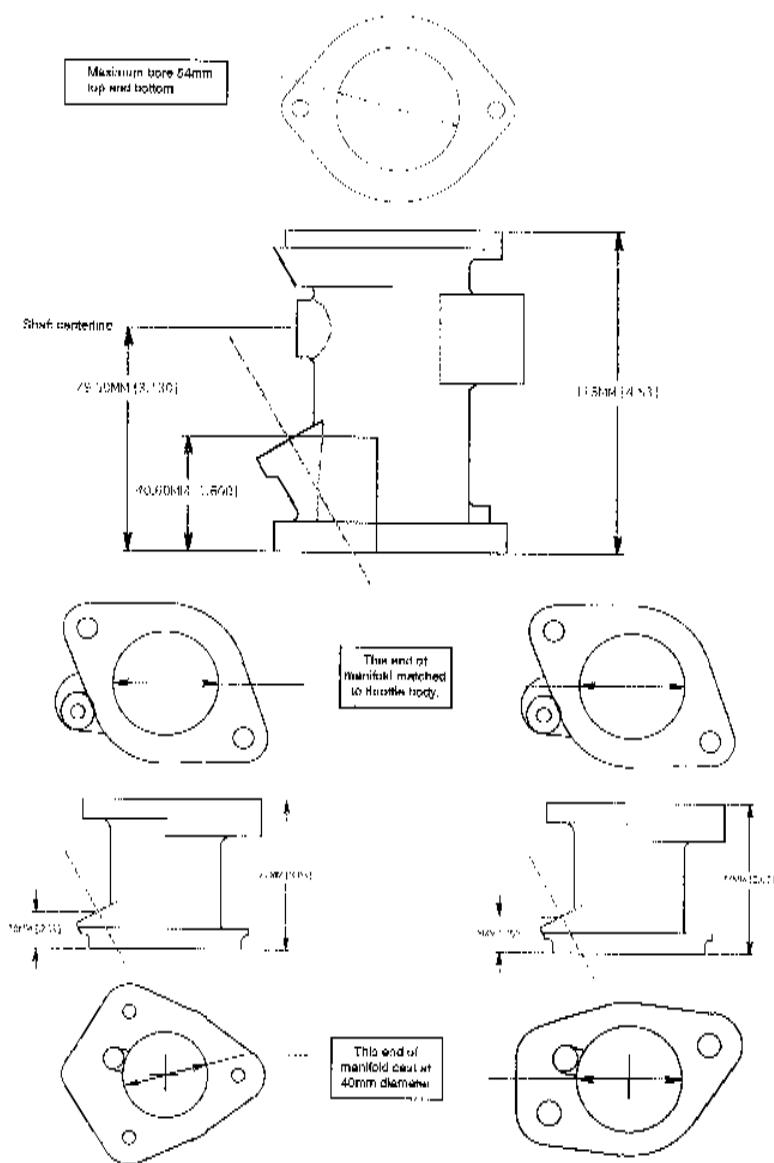
THROTTLE BODIES FOR PORSCHE APPLICATIONS

3006 SERIES



THROTTLE BODIES FOR PORSCHE APPLICATIONS

3006 SERIES



The ultimate throttle body package for flat six Porsche applications, this integrated system utilizes special manifolds which, unlike the old carburetor manifolds, permit the intake charge a "straight shot" at the valve. The system allows three alternative injector positions: one at the manifold / head interface, one downstream of the throttle plate in the throttle body and one in the air horn. In normal production, only the injector pocket in the throttle body is drilled. Essentially six individual throttle bodies, these units are not adversely affected, by unequal thermal expansion, in separate cylinders.

3006 series throttle bodies are equipped with **pockets for standard Bosch, Lucas, Rochester or Weber injectors**, using an O ring top and bottom. Each barrel has an **air by-pass screw**. One unit incorporates a **drive and mounting pad** for a **TWM** throttle position sensor. **Sizes available 46, 48, 50, 52 and 54mm**

There are **integral mounts** for the **dash 10 size fuel rail** which is supplied separately. A rail mounted fuel pressure regulator, part no. 2810-6401 or 2810-6411 (for manifold pressure reference) is available.

Weight:	Height:	M A P
including 6 injectors, air horns and linkage	overall including 50 mm air horns	Sensor ports:
6.75 kg	250 mm	one in each runner.
14.85 lb	9.84 in	

ORDERING GUIDE 3006 Series

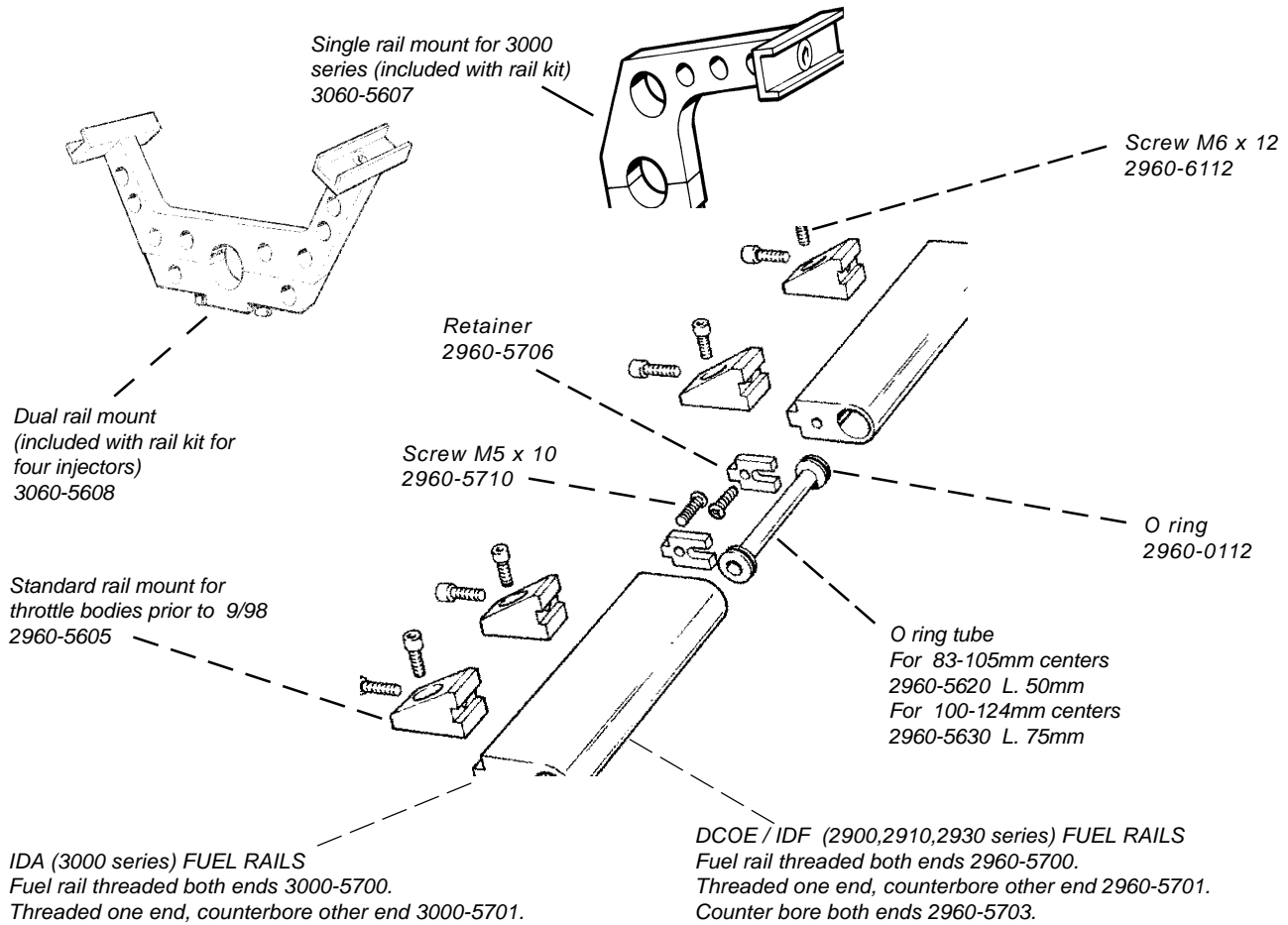
Order by series number, bore diameter and whether two or three bolt flange.

Example:

3006-5401/2 = 54 mm throttle bodies with **2 bolt** manifold flanges.

3006-6701= Complete fuel rail kit for one engine assembly, with divided rails.

FUEL RAIL COMPONENTS

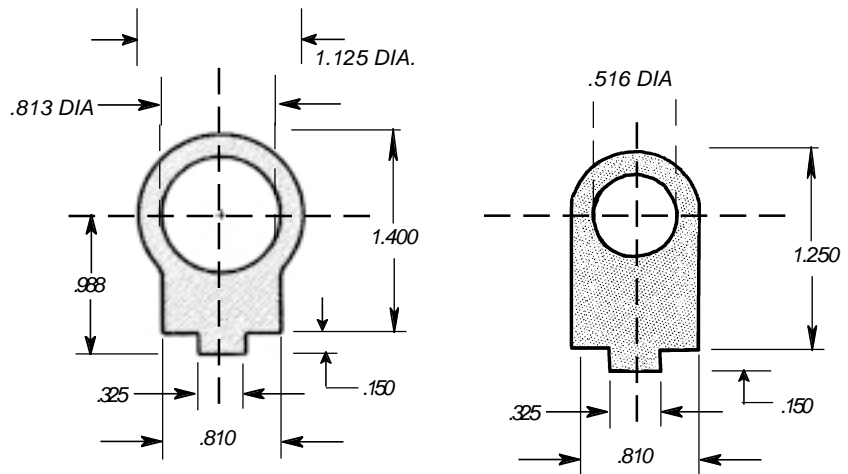


BLANK FUEL RAIL

TWM fuel rail is now available in two sizes, dash 6 and dash 10.

The cross section shape enables the use of the injector retaining clips, used in our throttle body fuel rail kits.

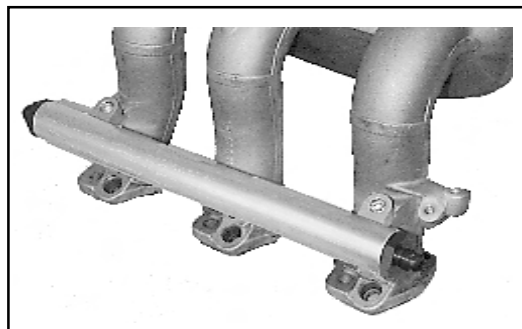
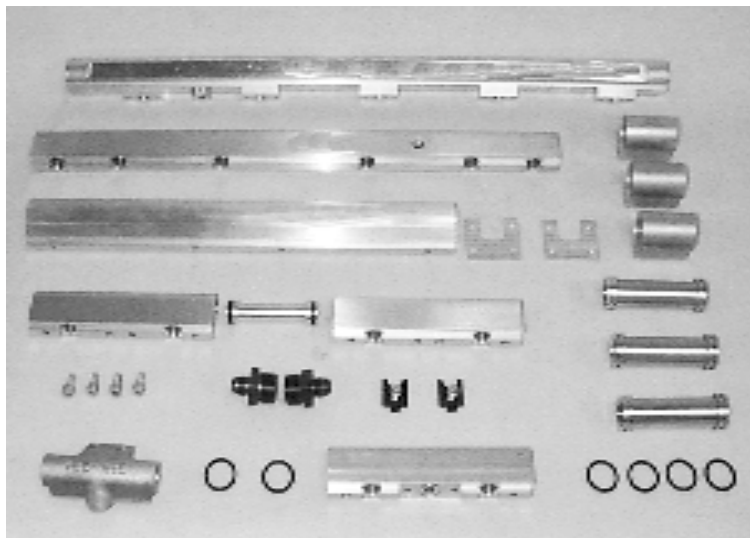
The design features additional material below the fuel gallery to facilitate the drilling of mounting holes.



ORDERING GUIDE

Blank fuel rail, -6	24 inch length (61cm)	2900-5602
Blank fuel rail, -6	36 inch length (91.5 cm)	2900-5603
Blank fuel rail, -6	72 inch length (183 cm)	2900-5606
Blank fuel rail, -10	24 inch length	3006-6602
Blank fuel rail, -10	36 inch length	3006-6603
Blank fuel rail, -10	72 inch length	3006-6606

FUEL RAIL KITS



ORDERING GUIDE

FUEL RAIL KITS FOR 2000 SERIES THROTTLES

2000-6701 Dash 10 rail kit for 2000-0111 and 0122

2000-6702 Dash 10 rail kit for 2000-0123

FUEL RAIL KITS FOR 2900, 2930 SERIES THROTTLE BODIES

2900-5800 Rail kit for air cooled VW engines. Each rail has AN-6 threads at both ends.

2900-5801 Rail kit for dual set-up at center to center distances of 83-105mm.

2900-5802 Rail kit for dual set-up at center to center distances of 100-124mm.

2900-5803 Rail kit for triple installation.

2900-5804 Rail kit for one throttle body, with four injectors.

FUEL RAIL KITS FOR 3000 SERIES THROTTLE BODIES

3000-5801 Rail kit for four IDA throttle bodies at center to center distances of 83-105mm.

3000-5802 Rail kit for four IDA throttle bodies at center to center distances of 100-124mm.

3000-5803 Rail kit for two IDA throttle bodies on air cooled VW engines.

3000-5806 Rail kit for one IDA throttle body with four injectors.

3000-6801 Dash 10 rail kit for four IDA throttle bodies at center to center distances of 83-105mm.

3000-6802 Dash 10 rail kit for four IDA throttle bodies at center to center distances of 100-124mm.

FUEL RAILS FOR 3005 SERIES

3005-5710 Fuel rail with one injector, threaded both ends -6 AN.

3005-5720 Fuel rail with two injectors, threaded both ends -6 AN.

3005-5711 Fuel rail with one injector, threaded -6 AN one end with O ring counterbore other end.

3005-5721 Fuel rail with two injectors, threaded -6 AN one end with O ring counterbore other end.

3005-5713 Fuel rail with one injector, with O ring counterbore both ends.

3005-5723 Fuel rail with two injectors, with O ring counterbore both ends.

3005-5630 Connecting tube, with O rings, for center to center spacing 110-128mm (4.33-5.00").

FUEL RAILS FOR 3006 SERIES

3006-6701 Fuel rail kit for 6 cyl Porsche applications, dash 10.

FUEL RAILS FOR PORSCHE Applications

3006-7701 Dash 10 rail kit for stock injection manifolds, with AN fittings and brackets.

AIR HORNS FOR THROTTLE BODIES



TWM air horns are manufactured from 6061 alloy spinnings, machined for accuracy and combined with 6061 T6 billet flanges.

The full radius design is accepted by the performance industry as the best for maximum air flow.

Air horns should be selected by the inside diameter (A dimension), which should correspond to the throttle plate diameter of the throttle body, then by the required length.

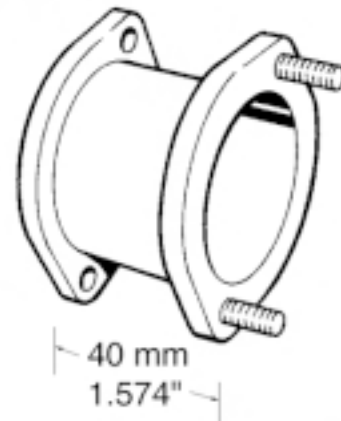
See separate catalog section for carburetor air horns

EXTENSIONS FOR THROTTLE BODIES

Use these extensions to provide a mounting surface for an air filter baseplate, beyond the fuel rails on 2900, 2930 and 3000 series throttle bodies.

These components can also be used to extend the effective length of an air horn during dyno testing.

Not required if you are using the TWM air box 2900-1575 (see pp 44 for details of this important new product)



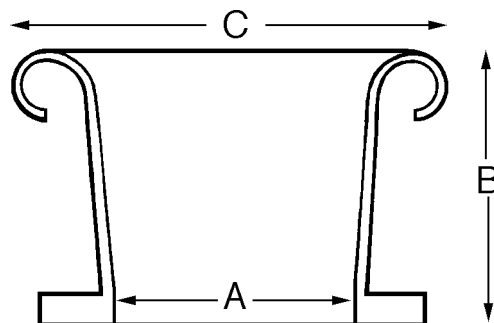
ORDERING GUIDE

Bore size in mm	Part No
40	2950-4000
42	2950-4200
45	2950-4500
48	2950-4800
50	2950-5000

AIR HORNS FOR THROTTLE BODIES

Air horns should be selected by the inside diameter (**Dimension A**), which should correspond to the throttle plate diameter of the throttle body, then by the required length.

Dimension H is the dimension between the stud hole centers.



ORDERING GUIDE

PART N°	SERIES	A	B	C	H
2000-4835	2000	48	35	88	69
2000-4850	2000	48	50	88	69
2000-4875	2000	48	75	88	69
2000-5050	2000	50	50	88	69
2700-4535	2700	45	35	84	
2700-4550	2700	45	50	84	
2710-4550	2710	45	50	84	
2900-4050	2900, 2930, 3003	40	50	80	65
2900-4075	2900, 2930, 3003	40	75	80	65
2900-40100	2900, 2930, 3003	40	100	80	65
2900-4250	2900	42	60	80	65
2900-4275	2900	42	75	80	65
2900-42100	2900	42	100	80	65
2900-4450	3003	44	50	87	65
2900-4550	2900, 2930	45	50	84	65
2900-4575	2900, 2930	45	75	88	65
2900-4835	2900, 2930, 3000, 3003	48	35	88	65
2900-4850	2900, 2930, 3000, 3003	48	50	88	65
2900-4875	2900, 2930, 3000, 3003	48	75	88	65
2900-4890	2900, 2930, 3000, 3003	48	90	88	65
2900-48100	2900, 2930, 3000, 3003	48	100	88	65
2900-48115	2900, 2930, 3000, 3003	48	115	88	65
2900-5050	2900, 2930, 3000, 3002, 3003	50	50	88	65
2900-5560	2900, 3000	55	65	95	69
3000-5075	3000, 3002, 3003	50	75	110	69
3000-50100	3000, 3002	50	100	110	69
3003-4650	3003	46	50	87	65
3004-4050	3004	50			
3004-4450	3004	50			
3004-4650	3004	50			
3006-4675	3006	46	75	110	69
3006-4875	3006	48	75	110	69
3006-5075	3006	50	75	110	69
3006-5275	3006	52	75	110	69
3006-5475	3006	54	75	110	69
3006-5675	3006	56	75	110	69

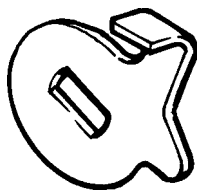
We design and manufacture air horns for various car and engine manufacturers. Our design service is available to produce one off, prototype and production horns at reasonable prices

THROTTLE LINKAGE COMPONENTS



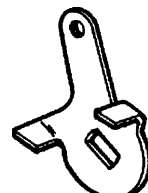
THROTTLE LEVER

Fits 2900, 2930, 3000 series
Part No **2900-1700**



THROTTLE STOP

Fits 2900, 2930, 3000 series
Part No **2900-1703**



THROTTLE LEVER

Enables counter clockwise rotation of 3000 series
Part No **2900-1701**
Use with spring 47610.110



THROTTLE LEVER

Standard on 2900 series
interconnects with 2900-3039.
Part No **2900-3038**



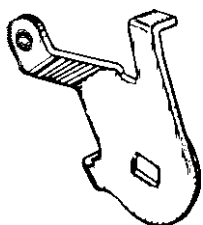
THROTTLE LEVER

Standard on 2910 series
interconnects with 2900-3039.
Part No **2910-3038**



LEVER - INTERCONNECT

Pairs with 2900, 2910-3038
Part No **2900-3039**



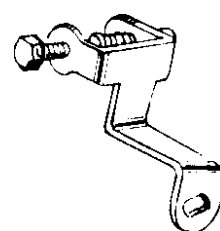
LEVER - DCNF

Part No **3004-1701**



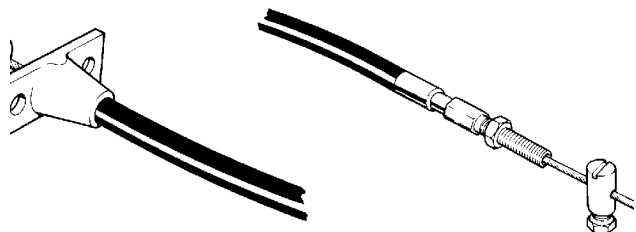
LEVER-INTERCONNECT

Fits 3004 series, Part No **3004-3038**
Pair with 3004-3039



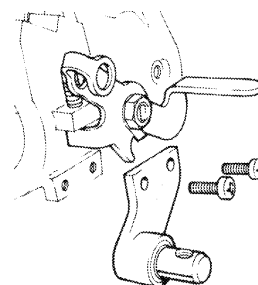
LEVER - INTERCONNECT

Part No **3004-3039**
Pair with 3004-3038



THROTTLE CABLE

With firewall fitting and threaded (M8x1) adjuster. Length 42" inner, 36" outer with trunnion. Part No **2900-3066**



THROTTLE CABLE BRACKET

Fits 2900 series, locates cable for 2900-3038 lever. Swivel has M8x1 thread for cable adjuster. Part No **2900-3050** (2910-3050 for 2910 series)

ADJUSTABLE FUEL PRESSURE REGULATORS

We offer several adjustable fuel pressure regulators machined from 6061-T6 aluminum, all designed for firewall or fuel rail mountings. All feature threaded fuel line fittings. All regulators will flow between 300 and 700 lb of gasoline per hour depending on the fuel pump configuration.

Note: 300 lb/hr is sufficient for a 600 hp engine (on Gasoline).

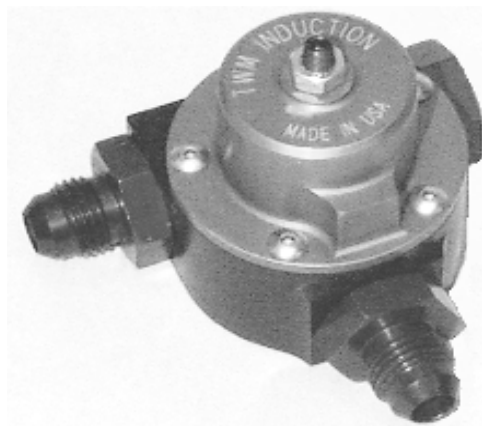
ORDERING GUIDE

Inline type

Part no	Inlet	Return	Pressure
2800-4401	-6 AN	-6 AN	35-45
2800-4404	-6 AN	-6 AN	55-65

Manifold referenced models

Part no	Inlet	Return	Pressure
2800-4411	-6 AN	-6 AN	35-45
2800-4414	-6 AN	-6 AN	55-65



Adjustable from 35 to 55psi

Adjustable from 55 to 70psi

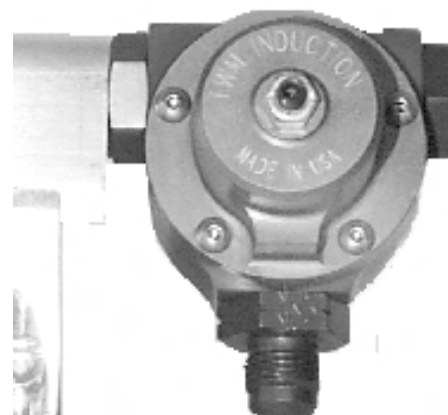
ORDERING GUIDE

Rail end mount

Part No.	Return	Pressure
2800-6401	-6 AN	35-45
2800-6404	-6 AN	55-65

Manifold referenced models

Part No.	Return	Pressure
2800-6411	-6 AN	35-45
2800-6414	-6 AN	55-65



Adjustable from 35 to 55psi

Adjustable from 55 to 70psi

ORDERING GUIDE

Rail center mount

Part No	Return	Pressure
2800-6402	-6 AN	35-45
2800-6406	-6 AN	55-65

Manifold referenced models

Part No	Return	Pressure
2800-6412	-6 AN	35-45
2800-6416	-6 AN	55-65

Supplied with rail-specify type when ordering, threaded both ends or thread one end and counterbore.



Adjustable from 35 to 55psi

Adjustable from 55 to 70psi

CALCULATING INJECTOR SIZE AND TYPE

Static Flow rates quoted are the result of testing at 43.5 Psi (3Bar). Static flow is measured with the injector held open. Static flow rate tolerance is $\pm 3\%$.

The quantity of fuel delivered is controlled by the length of time the injector is open. This is referred to as **pulse width**.

Use the **static flow numbers** to calculate the **maximum practical operating capacity**. This number will be approximately 80% of the static flow. Flow rates may be increased by increasing the fuel pressure to a maximum of 73.5 psi.

To determine fuel flow requirements, you should estimate the horsepower expected. In normally aspirated engines a **Brake Specific Fuel Consumption (BSFC)** of .5 lb of pump gas, per horsepower, per hour or better can be expected. Taking the horsepower number and dividing it by 2 will give the fuel requirements of the engine eg. a 300 HP engine will require $300 \times .5 = 150$ lb of fuel an hour, at maximum power.

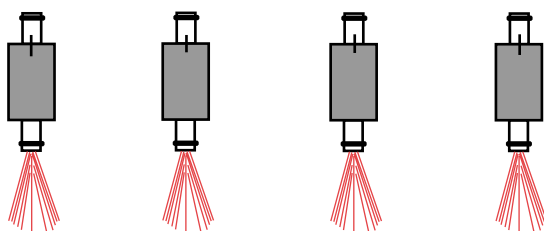
Dividing the fuel requirements by the number of injectors, for this example we will use 4, we arrive at an injector capacity requirement of $150/4 = 37.5$. Remembering that injector capacity quoted in the table, is static flow, we must now increase this number by multiplying it by 1.25 to allow the injector to **operate at no more than 80% of its static flow**. Therefore, $37.5 \times 1.25 = 46.875$ lbs/hr. Consult the table on the opposite page to find an injector with the right flow capacity.

Injector resistance is an important consideration when matching ECU's to injectors. Injectors are manufactured as low resistance or high resistance. Low resistance injectors typically measure in the 2 to 5 ohm range, high resistance being 12 to 16 ohms. It is important to match injectors with the injector drivers in the ECU being used. Generally speaking, original equipment ECU's are equipped with saturated drivers which drive high resistance injectors. Aftermarket ECU's are equipped with drivers for peak and hold injectors which are low resistance. Some aftermarket ECU's will drive both types of injector: It should be mentioned, however that injectors for saturated drivers do have a slower response time than those for peak and hold. Most peak and hold drivers will drive both high and low resistance injectors but, **under no circumstances, should peak and hold injectors be driven with saturated drivers.**

To calculate the current requirements of an injector use Ohms law and divide the system voltage by the resistance. Therefore, in the case of a high resistance injector of 12 ohms operating on a 12V system, $12/12 = 1$ amp. In the case of a low resistance injector operating on a 12V system we have $12/2 = 6$ amps. Observe that the current requirement for a peak and hold injector during the opening phase of operation is much higher than the saturated type, the current peak being used to "snap" the injector open. Drivers for peak and hold injectors are typically limited to 4 amps or 2 amps for opening and 1 amp or .5 amps respectively, for the hold period.

Never install peak and hold injectors with saturated circuit drivers.

INJECTOR SELECTOR



Fuel Pressure in Psi				Driver Type	Resistance Ohms	Manufacturer	Part Number
43.5	60	65	73.5				
19	22	23	25	Sat	16	Rochester	2900-2016
19	22	23	25	Sat		Bosch	2900-3302
20	23	24	25	Sat	16	Lucas	2500-1014
20	23	24	25	P & H	2.2	Lucas	2500-1028
20	23	24	26	P & H	2.2	Lucas	2500-1033
20	24	25	26	Sat	16	Lucas	2500-1012
21	24	25	27	Sat	16	Lucas	2500-1004
21	25	26	27	P & H	2.4	Lucas	2500-1001
21	25	26	27	Sat	12	Rochester	2900-2010
21	25	26	28	Sat	16	Lucas	2500-1000
21	25	26	28	P & H	2.4	Lucas	2500-1013
22	26	27	29	Sat	16	Rochester	2900-2017
24	28	29	31	Sat	16	Lucas	2500-1022
25	29	30	32	Sat		Bosch	2900-1302
25	29	30	32	P & H	2.2	Lucas	2500-1025
26	31	32	34	P & H	2.0	Rochester	2900-2011
26	31	32	34	Sat	16	Lucas	2500-1008
31	36	38	40	Sat		Bosch	2900-2302
31	37	38	40	Sat	16	Lucas	2500-1021
32	38	40	42	P & H	2.2	Lucas	2500-1016
34	40	42	44	P & H	2.0	Rochester	2900-2012
36	38	44	47	P & H		Bosch	2900-0803
37	43	45	47	Sat		Bosch	2900-4302
37	43	45	48	P & H	2.2	Lucas	2500-1018
37	44	46	49	Sat	16	Lucas	2500-1031
38	45	46	49	Sat	12	Rochester	2900-2018
41	48	50	53	Sat	16	Lucas	2500-1009
42	49	51	54	Sat	16	Lucas	2500-1030
50	59	61	65	Sat	12	Rochester	2900-2013
51	60	63	67	P & H	2.2	Lucas	2500-1032
72	85	88	94	P & H	2	Rochester	2900-2014
96	113	117	125	P & H	2	Rochester	2900-2015

LUCAS ELECTRONIC FUEL INJECTORS

The Lucas Disc Injector is a revolutionary design offering several performance advantages over conventional pintle type injectors

■ **Faster response time:** The injector pulse is controlled by a disc valve which is one eighth the weight of a conventional needle or pintle. Response to driver demands is faster and equally valid over the dynamic range, from idle to wide open throttle.

■ The flat disc valve mates flat surface to flat surface, providing a total seal. Faster, more positive opening and closing, means closer control of fuel delivery.

■ Recessed fuel metering. The metering process is carried out, not at the tip but in a recessed area, away from harmful carbon deposits.

■ The spray formation from this design is a dispersion diverging spray of a 5 to 10 degree angle at the nozzle diameter.

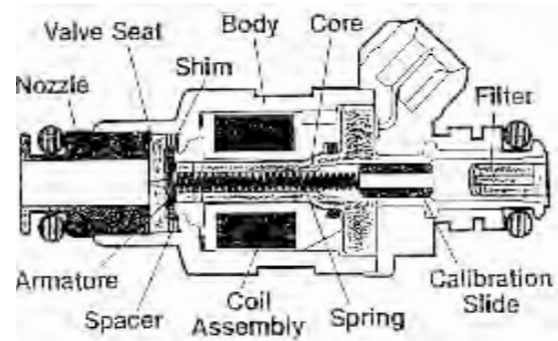
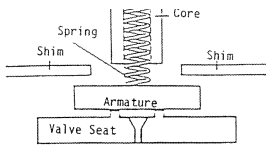


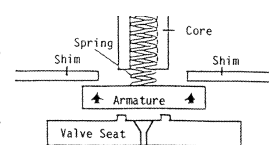
Fig. 1 — Lucas CAV Injector



Injector closed

Fuel enters the top of the injector through the fuel filter, then flows through core center to the area above the disc valve or armature. In the closed position the disc or armature is held in position on the valve seat preventing fuel from entering the orifice.

As the injector's coil is energised, the disc or armature is lifted from its valve seat, allowing fuel to be discharged through the, now open, orifice. The spray formation from this design is a dispersion diverging spray of a 5 to 10 degree angle at the nozzle diameter.



Injector open

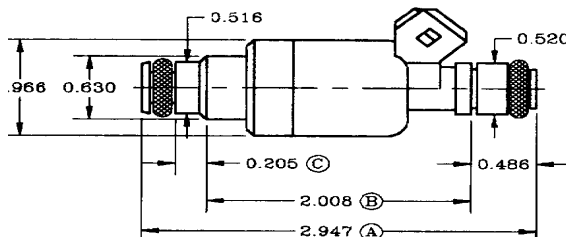
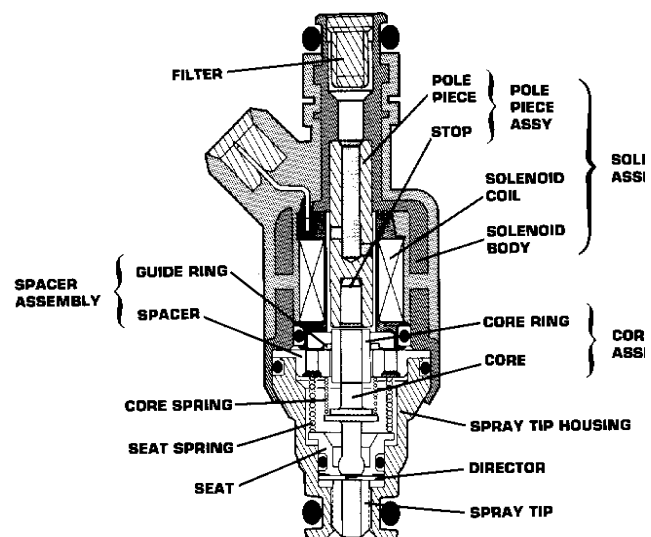
ROCHESTER ELECTRONIC FUEL INJECTORS

■ 10 - 15° Spray angle.

■ Flow tested and matched to within 3%.

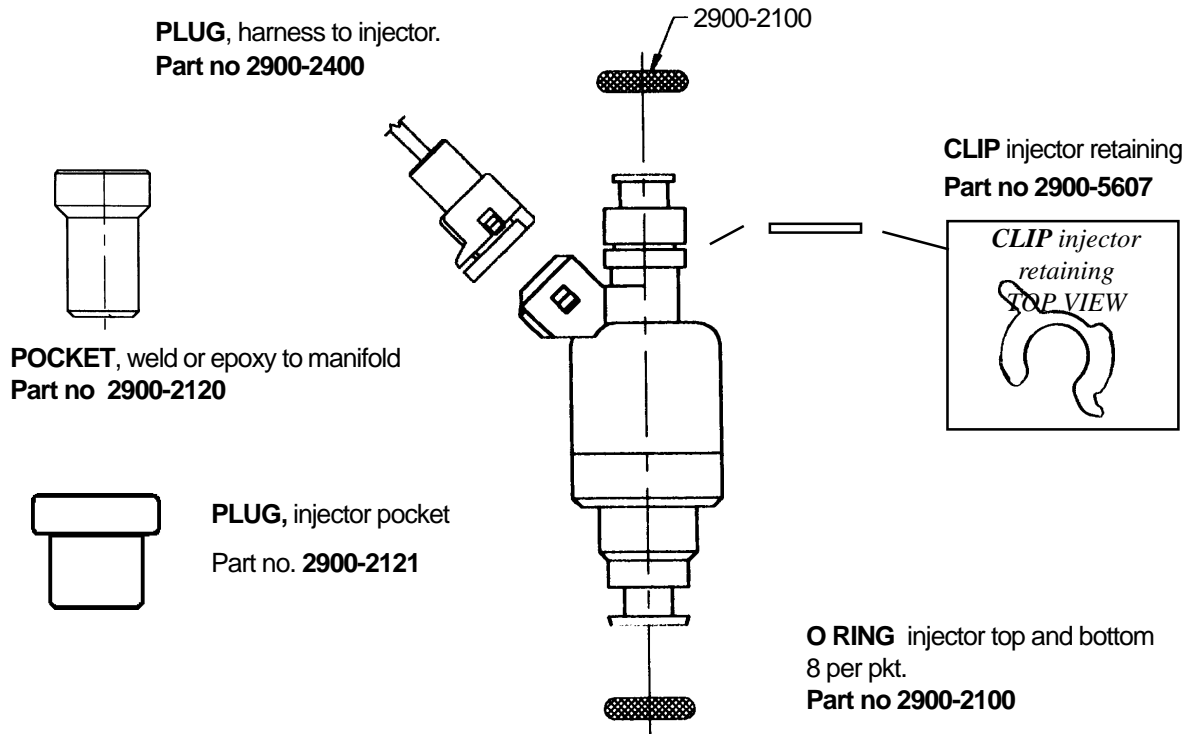
■ Rochester injectors are **compatible with alcohol and methanol fuels**. Use of these fuels will require, at least, a doubling of injector flow capacity compared with gasoline.

■ **TWM** throttle bodies have been engineered to accommodate Rochester injectors.

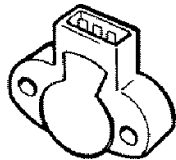


Note: Part No 2900-2014 & 2900-2015
A = 2.843 B = 1.947 C = 0.224

INJECTOR SUPPORT COMPONENTS



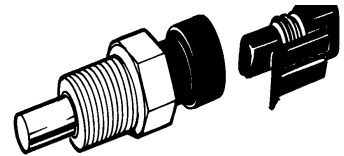
ENGINE MANAGEMENT COMPONENTS



THROTTLE POSITION SENSOR
Part No 2900-3040 (ccw)
2900-3041 (cw)



PLUG FOR TPS
Part No 2900-3042



SENSOR Part No
Coolant 2900-2310
Intake Air 2900-2320



OXYGEN SENSOR
Heated, 3 wire.
Mount approx 30"
from the head.
Ideal exh temp 680-1450°F.
Part No 2799-0001

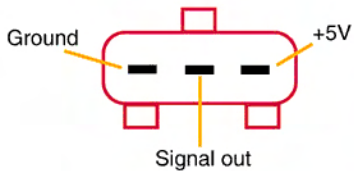


WELD ON BOSS WITH PLUG
for oxygen sensor.
Part No
Plug 2799-0005
Bushing 2799-0006
Sealing washer 2799-0007



HALMETER
Air fuel ratio indicator.
Reads your A/F Ratio
while you drive.

Top View of TPS Pin Out



Please note: this is the top view of the TPS itself, not the plug.