

## **17 Engine Auxiliaries**

top left fig 16c top right 16d  
under fig 16e

### **17.1 Water pump (pinto)**

**Kawasaki 900 ex.**



#### **What you need:**

- 3 x M8 x 25mm bolts.
- 1 x M10 x 25mm bolt.
- Water Pump.
- Gasket.
- Pulley.
- 4 x M8 x pulley retaining bolts.

The water pump bolts on to the front of the engine  
On zetec engines the cam belt has to be removed to remove the water pump  
For better water flow on 2ltr engines-a 1.8cczetec pump can be fitted.

- A gasket sits between the water pump and engine block- place the water pump into position and secure using the bolts provided.
- A sealer can be used on gasket
- Bolt the pulley to the water pump using the 4 retaining bolts provided .

The belt which drives the water pump is connected after the alternator has been fitted.

The thermostat housing on ohc engine should be the type with the small “cut out flat section” of the tube.

### 17.2 Distributor (ohc)

**What you need:**

- Distributor.
- Clamp.
- 1 x M8 x        bolt.

**fig 17.21**



The distributor is positioned on the right hand side of the engine block, near the front, if viewed from the front end of the car. This is shown in figure 17.21.

For distributor timing refer to ford manual.(or camshaft manufacture)

Ford Zetec 16v cars --- The spark for the engine is from a webber alpha electronic system- it can be purchased from tiger and is basically a ecu. With wiring loom which is multy plugged and easy to fit. The pick up is from the sensor on the back of the engine block - to flywheel(plug) The coil pack sits on the back of the engine at top on a ford bracket(plug)there a couple of wires to connect (see their instructions).

### 17.3 Alternator Pinto(ohc)

**What you need:**

- Alternator.
- Alternator adjusting bracket
- Drill.
- 8.1mm Drill bit.
- Alternator Bracket.
- Alternator long bolt or studding
- 3 x M8 nuts.
- 1 x M8 x 50mm bolt.
- Pulley belt,
- Torque wrench.
- 1 x M10 nut.
- 1 x M10 washer.
- Saw.
- Rule.
- File.



**Fig17a**

The first thing needed to be done is to fit the alternator bracket to the engine head. It is positioned just in front of the forward most exhaust pipe -the two 8mm threads are in most cases already in the head-but there are some Ford Pinto(OHC) that do not have them—in this case they must be drilled and tapped(8mm)the Tiger Factory can do this-or a small template can be sent from the factory for you to do this .fig17a

In each position a 3.2mm pilot hole is drilled—then a 7mm hole into these-then a 8mm tap is used.

- Line up the alternator bracket with the holes, ensuring that the bracket does not foul the exhaust manifold (some metal can be taken off the edge of the number one pipe edge)as stated in previous chapter.
- Check the holes for alignment on bracket.
- the top of the bracket should be approx. in line with top of rocker cover.
- when fitting bolts make sure that the bolts do not “bottom out” use washers to obtain tightness on bolts if required .
- When fitting the bolts use locktight or silicone works ok.

- Replace the bracket and using the two bolts secure it to the engine block.
- Fit the fan and pulley to the alternator, the fan sitting between the alternator and pulley.
- Now line the alternator up with the bracket and slide through the alternator shaft thus securing the alternator to its bracket.
- Check that the pulleys on the alternator, water pump and drive all line up so that the drive belt may be fitted.

**N.B.** The three pulleys will probably not line up. The alternator pulley will be too far forwards. If they do line up then ignore the following section on altering the alternator bracket.

The alternator will need to be moved towards the rear of the engine .

- Measure the distance the alternator needs to be moved.
- Remove the alternator from its bracket.
- Cut the amount needed to be removed off the most forward end of the alternator bracket, using a saw.
- File off any sharp edges.
- This piece removed should be placed on the opposite side of the bracket as you are fitting the alternator(washers can also be used)

**N.B.** The three pulleys should now line up so that the drive belt may be fitted.

- Fit the drive belt around the three pulleys, the alternator, water pump and drive pulley at the bottom of the engine block.

Now that the drive belt has been fitted the alternator tensioning bar will need to be fitted, firstly it needs to be altered as in its present form it is too short.

- The bar must be cut into two pieces .
- Between the two pieces a new piece of similar metal must be welded in
- The end with the circular hole fitting is bolted directly to the engine block just above the water pump fitting.
- The other end with the oval slot is bolted to the alternator, and holds it the required distance from the engine to tighten or slacken the drive belt.
- It may be required to put a slight “set” in the adjuster to obtain correct fit on both alternator and w/pump or small washers can be used—if the bracket is not square to each component stress can cause the alloy alt. to crack and break off.
- ALTERNATOR ZETEC. The Zetec alternator is the same type as ohc(pinto) but positioned on the offside of engine under the twin side draft carbs. The tiger alternator bracket sits on the side of the engine block with two m10 bolts(cap) - the alternator swings up—the opposite to the pinto which swings down - the adjusting bracket bolts to two of the side draft inlet manifold bolts. the pulley on the alternator has to be changed to the tiger multy grooved alloy pulley before fitting- no key way is used. The alt. cooling fan has to be fitted. Fig 17b. on zetec engines from approx 1999
- the water pump pully is different fig 17c – a new grove is also put in lower crankshaft pully.

#### 17.4 Cooling Fan rad

What you need: fig 17b

tiger front cooling fan



Zetec alt position(multy)pully

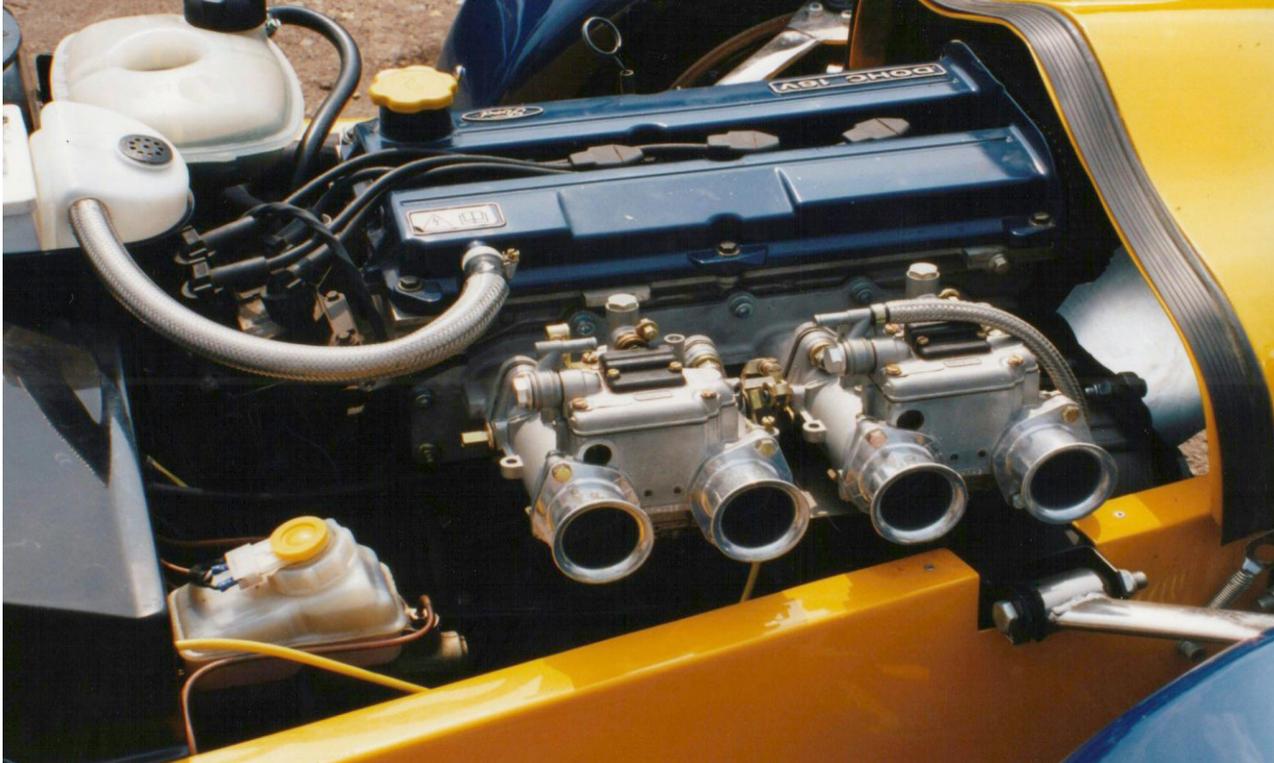


17.4



Fig 17c

the larger cooling fan is held by two beads of “pu” sealant to top and bottom of radiator another way of fixing is using cable ties through the rad. or small brackets can be fabricated is desired. Fig 17.4



### 17.5 Carburetors(side draft)

What you need:

pair carbs fig 17.5 and 17d

side draft manifold(with correct offset)

4x "o" ring gasket(carb to manifold)

8 studs

thackery washers and nuts

8 bolts (manifold to head)

throttle bracket

gasket manifold to head

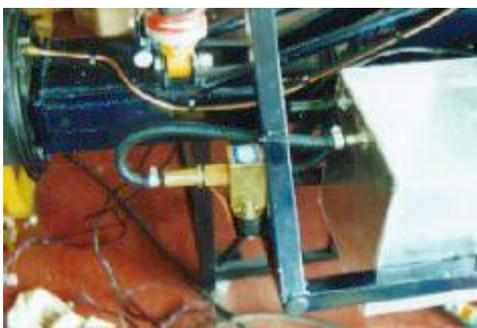
fig 17.5



bolt the carbs to manifold putting the "o" ring gaskets between them  
 bolt the throttle bracket under side on the two center studs(tiger)or use  
 a webcon throttle kit.

Note - the thackery washers should have an approx. gap of 1mm in between  
 them when tightened - do not completely tighten up - this is to keep the carbs  
 flexi - mounted to help stop the petrol frothing inside the float chamber when  
 at high rpm.

Fig 17d





## 17.6 Engine Bay Fuel Line

### What you need:

- Drill.
- 3.2mm drill bit. P clips
- P-clips. 3.2 pop rivets
- .Flexi rubber hose.

fig 17e

**Fig 17e shows the fuel “impact” switch –this will shut off the power to the electronic high pressure pump on injected engines.**

The fuel line needs to be run from the transmission tunnel to the fuel pump, which is towards the front near-side of the engine.(ohc) and offside on Zetec and crossflow engines.

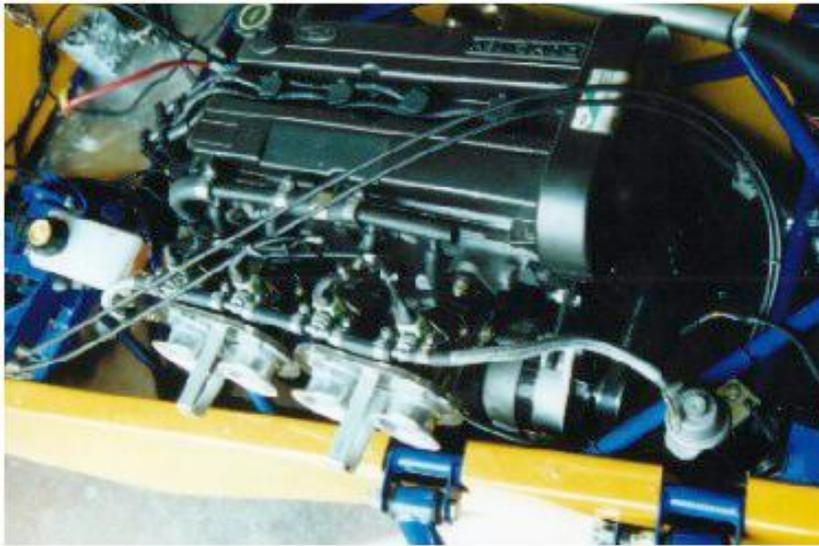
- It should be p-clipped securely in to position on the members, in the manner as



described when previously securing the fuel line.

- A small length of flexi-rubber hose is run between the fuel line and the fuel pump.
- Push the flexi-hose onto the fuel pump and trim as necessary to reach the end of the fuel line. Secure the hose at either end using the jubilee clips.

- On injection engined cars brass unions pushed over the steel fuel pipes and tightened “ to seal “and then higher grade fuel rubber hose fitted as the fuel pressure is much greater.,contact Tiger for more info. Fig 17f.



Zetec fitted webber/alpha injection(throttle body)  
THE BATTERY

Fig17f

The battery sits fairly central in the car left of the pedals(rhd) and is held - front )by the bracket supplied – which also holds the header tank for the rad(drill a 8mm hole) and bolt to 1”x1” crossmember—the rear of the battery is held by a small angled piece of steel or alloy this is pop riveted to the bulkhead.(dash rear). On cars like the R6 which may run with aero screens  
And not wish to fit a heater—then the header tank can be fitted to the left of the battery(with a small modifcation) to the header tank bracket.The battery is then secured with another small alloy angle bracket onto the front crossmember.