

Basic and in-depth questions about the YB_ engine range...

Hi All...

I'm pretty new to the whole 'Cosworth' thing, so please bear with me whilst I ask what might seem like pretty basic questions!

I'm not about to purchase a sierra Cosworth, but am seriously looking into using a YB_ for powering my next road/drag racing project. I'm therefore after a 'crash course' in the facts and to dispel some dubious rumours I've heard about these great engines.

Firstly, what are the 'official' power outputs of the 2wd and 4wd sierra YB_ engines, and at what boost level was these power levels achieved? Also, what is the correct designation for the 2wd, 4wd and Escort Cosworth engines? I know they are the YB_ range, but just for interests sake, what is the last letter for each one!

Was the turbocharger, ex. Manifold, and inlet manifold the same on the 2wd and 4wd versions – if not, what were the differences, and were they all basically interchangeable?

Do all the 2wd and 4wd engines have valves / valve seats and ECU's that mean they will run ok on Unleaded (Optimax) Fuel?

I understand the loom and ECU is different between the 2wd and 4wd. Why is this? Is the 4wd ECU more refined, is the 2wd ECU more easily tuned? Are the looms the same? Will the looms and ECU interchange (I assume they are all Weber/Marelli based???)

I hear the 4wd head is different from the 2wd. Is it a huge difference, is it better porting, larger valves, better cooling, thicker deck, etc? Is any better or more suited to bigger power outputs?

Block: what is the '205' block that I keep hearing mentioned? Are all the blocks pretty robust for moderate power increases anyway?

Aside from fitting a 'chip' is there anything else that needs doing to achieve a reliable 280-300 hp – eg, rod bolts, head gasket, improving cooling, plugs, etc... Intercooling will not be an issue by the way, it'll be much better than standard...

Finally, if I was to scour the small ads, how much do you reckon I could find a fully dressed engine in reasonable health for (i.e. turbo, inlet, plenum / fuel rail, flywheel, loom, ECU, etc)???

Many thanks, and apologies if it is stuff you've been asked a million times before!

Dave

Back to top

CossieEdd

=====
=====

Official std power outputs :

YBB 2wd 3dr / Sapph 204bhp

YBD RS500 224bhp

YBG / YBJ 4x4 Sapph 220bhp

YBT T34 Escort 227bhp

YBP T25 Escort 220bhp

Power made at std boost approx 8 psi

4x4 manifold is a single piece item - quite compact.
This gives good response and low down torque on lower power cars, i.e. if you are aiming at 300 ish bhp.
2wd is a better flowing design and comes in multiple pieces - better for higher power cars.

Different ECU's are as follows:

- Level1 3dr & very early 2wd Sapph
- Level6 2wd Sapph
- Level8 4x4 Sapph
- P8 T34 Escort
- Ford EEC-IV T25 Escort

std 205 block is found std on std 3dr and 2wd Sapph
Modified 205 block with thicker walls, smaller core plugs etc is RS500
More than 1 type of 200 block but these are all 4x4 blocks.

The power you will make will depend on the fitment of the other ancillaries but a live mapped chip, T34 turbo with a .48 a/r exhaust housing and "dk green" 803 injectors would be your best bet for a solid 300+ bhp without spending too much cash.

EDD

=====

hi

just interested in the torque thing u mentioned. am i right in thinking the 4X4 sapp has more low down torque than a 2wd or is this variable depending on mods etc?

dave

=====

The 4x4 head is a true hemi head, and has better cooling properties. Apparently the cams that come stock also allow smoother running. Also it is tuned to work with US emission regulations (despite the fact the engine was NEVER offered in America)

The 2WD 2-piece exhaust manifold is MUCH better than the one on the 4x4. So many Cosworth 4x4 owners swap to the 2WD exhaust manifold for a cheap power boost.

The L8 ECU (4x4) is more advanced and is set to run to US emission specs. It is said to run smoother in a 2WD car as well. Better than the L6 (2WD) and the 3 door Cosworth (L1) in the fact that it offers more memory.

That's what I know. Anyone willing to fill in any blanks?

turbodave
Virgin

=====

guys,

I'm left a little curious however; there must be quite a difference in the heads / cams or injection system if (on the same boost level) there is over a 20hp difference between the 2wd and 4wd?

I assume the 0.48A/R isn't on the Sierras as standard then? If this is the only change, i assume the trim on the compressor is good, but the power was 'held back' with the restrictive exhaust turbine? As nitrous isn't out of the question for an easy, cheap power boost in the future for the strip, a larger exhaust housing would probably be a good point to start from...

To clarify further - will both sierra ECU's swap with both looms? Is any ECU particularly better, or cheaper to modify / get more power from than another?
And are both / neither looms integral with the main sierra wiring loom - ie will the loom come with a load of redundant wires, or will it be just the Engine loom?

Cheers!

Rob

=====
=====

Better than the L6 (2WD) and the 3 door Cosworth (L1) in the fact that it offers more memory.

That's what I know. Anyone willing to fill in any blanks?

i'm interested in ecu swapping. i was originally after a L6 instead of my L1. however i was told by another 3 dr owner there was no difference felt on the road. ie not any smother??

also read that although the L6 has more memory it doesn't use any more than the L1. something to do with the memory chip(s) in the L1 being obsolete - only larger capacity ones available. but i don't know this for 100%. only read/heard?

PS this is from another website

RM in Adelaide

Topic: Any good ? (2 of 5), Read 42 times

Conf: [Cosworth Engines](#)

From: [John Alderson \(jsa@powerup.com.au\)](#)

Date: Thursday, May 20, 2004 12:06 PM

Roger.....

Looks reasonably accurate based on my limited knowledge.

The figures below are similar to what I have seen in the workshop manuals.

According to the workshop manual
Oct87, 0.7bar boost for earliest engines, so YBB

Sep90, 0.8Bar for US emission standard, 4x4 sapphire

Mar92, 0.9Bar for US emission standard, Early Escort Cosworth YBT

Jun94, 0.95-1.3Bar, for Late Escort Cosworth YBP.

>Official std power outputs :

>

>YBB 2wd 3dr / Sapph 204bhp

>YBD RS500 224bhp

>YBG / YBJ 4x4 Sapph 220bhp

>YBT T34 Escort 227bhp

>YBP T25 Escort 220bhp

>

This does not match workshop manual.

>Power made at std boost approx

>8 psi

Also, what is the

>correct designation for the

>2wd, 4wd and Escort Cosworth

>engines? I know they are the

>YB_ range, but just for

>interests sake, what is the

>last letter for each one!

According to Graham Robsons book "Cosworth The Search For Power":

YBA Prototype of YBB,

YBB used in 2dr Sierra from '86 and Sapphire from '88

YBC Gp A rally engine based on YBB

YBD RS500 engine

YBE Industrial product engine

YBF Race version of YBD

YBG US emission version of YBB

YBJ similar to YBG but 15.04 emmissions and 95 octane certified

YBM Motorsport version, Rally use in Escort Cosworth RS

YBT Early EScort Cosworth engine

YBP Late Escort cosworth engine

>

>Was the turbocharger, ex.

>Manifold, and inlet manifold

>the same on the 2wd and 4wd

>versions – if not, what were

>the differences, and were they

>all basically interchangeable?

2wd exhaust manifold is a 2 piece 4-2 cast tubular design. 4wd exhaust manifold is more like a log manifold and is 1 piece.

The RS500 Exhaust manifold might be different as I can't fit a TO4 size turbo on the 2wd manifold I have. Something is different on the exhaust side, whether it be turbine housing or manifold & housing ?

- >4x4 manifold is a single piece
- >item - quite compact.
- >This gives good response and
- >low down torque on lower power
- >cars, i.e. if you are aiming
- >at 300 ish bhp.
- >2wd is a better flowing design
- >and comes in multiple pieces -
- >better for higher power cars.
- >
- >Do all the 2wd and 4wd engines
- >have valves / valve seats and
- >ECU's that mean they will run
- >ok on Unleaded (Optimax) Fuel?

All have the same valves and seats and can run unleaded.

- >I understand the loom and ECU
- >is different between the 2wd
- >and 4wd. Why is this? Is the
- >4wd ECU more refined, is the
- >2wd ECU more easily tuned? Are
- >the looms the same? Will the
- >looms and ECU interchange (I
- >assume they are all
- >Weber/Marelli based???)

Rising boost levels over the years supports the notion that better control was fitted as time passed.

- >I hear the 4wd head is
- >different from the 2wd. Is it
- >a huge difference, is it
- >better porting, larger valves,
- >better cooling, thicker deck,
- >etc? Is any better or more
- >suited to bigger power
- >outputs?

YBB is more prone to head gasket failure at high boost level. Later heads have the water galleries arranged differently on the exhaust side.

Port & valves are all the same, at least on the YBB & YBP I've had side by side.

- >Block: what is the '205' block
- >that I keep hearing mentioned?
- >Are all the blocks pretty
- >robust for moderate power
- >increases anyway?
- >Level1 3dr & very early 2wd

- > Sapph
- > Level6 2wd Sapph
- > Level8 4x4 Sapph
- > P8 T34 Escort
- > Ford EEC-IV T25 Escort

YBP certainly has a ford ECU

Cheers

John

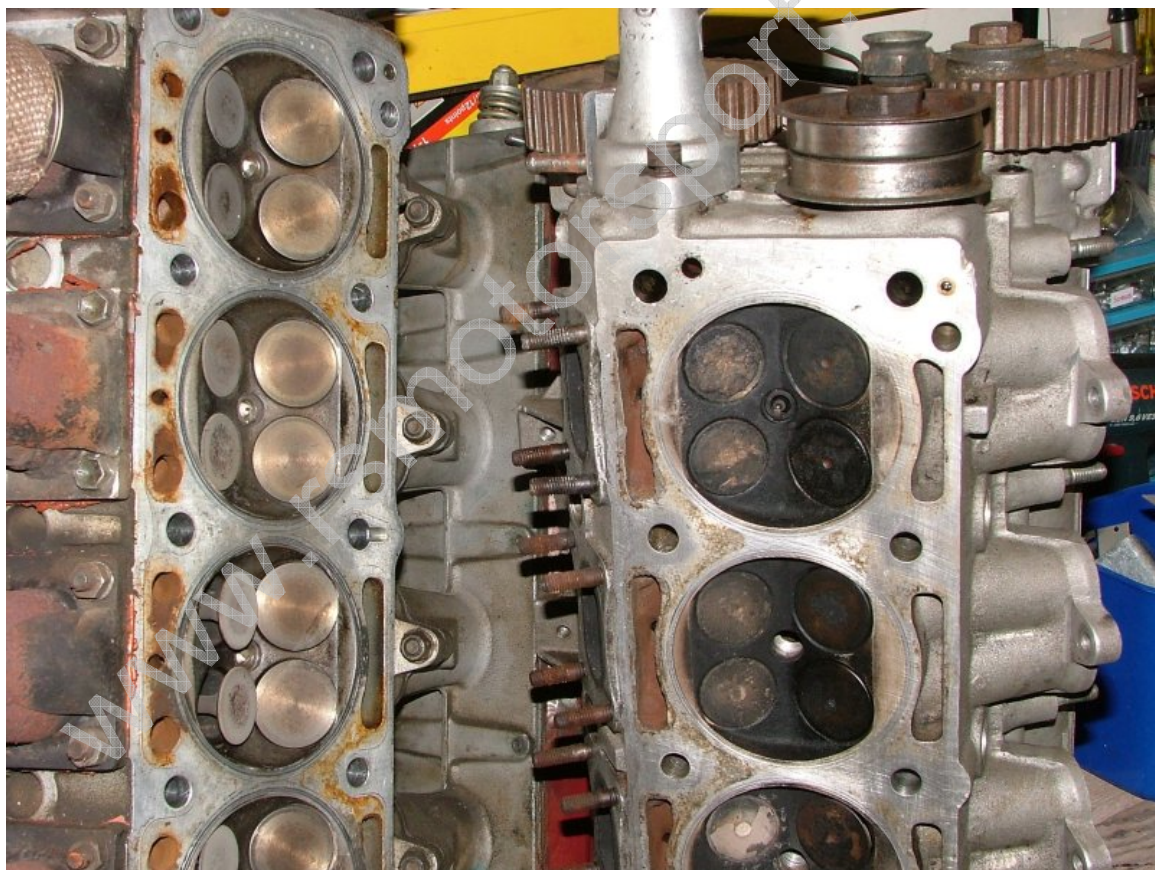
Topic: Any good ? (3 of 5), Read 37 times

Conf: [Cosworth Engines](#)

From: [Albert Del Medico \(zakspeed@telstra.com\)](#)

Date: Thursday, May 20, 2004 12:56 PM

Head on the left is a YBM (YBG based) and YBB on the right, you can notice the difference in the water galleries.



Albert

Topic: Any good ? (4 of 5), Read 18 times

Conf: [Cosworth Engines](#)

From: [Glenn Pro \(promoco@kooee.com.au\)](#)

Date: Thursday, May 20, 2004 05:57 PM

On 5/20/04 12:56:22 PM, Albert Del Medico wrote:

>Head on the left is a YBM (YBG
>based) and YBB on the right,
>you can notice the difference
>in the water galleries.

>

>Albert

Well I always thought mine was an early head because of the red cover that came with it. But it has the 3 bolt water neck and the water galleries look like the left hand head.

Proey

Topic: Any good ? (5 of 5), Read 8 times

Conf: [Cosworth Engines](#)

From: [Albert Del Medico \(zakspeed@telstra.com\)](#)

Date: Thursday, May 20, 2004 07:36 PM

Glenn, the YBG 4wd head does not have the 2 lugs on the exhaust side for a damper, whereas the 2wd does - to support the turbo due to a longer manifold.

Regards

Albert

www.rsmotorsport.com.au