HOLDEN JACKAROO DIESEL ENGINE CONVERSION FROM 4JX1 TO 4JB1

My story-

In February 2011 I bought a 2000 model Jackaroo with the 4JX1 turbo diesel. I had it sitting for a week, still during warm weather, yet it hardly started. It blew quite a bit of white smoke. My local mechanic eased my mind temporarily when he did a compression test and found it was good. But my heart sank when I logged on to internet forums to investigate and discovered hundreds of threads with people in trouble with 4JX1. Some run well for years, but others, once problems develop, are continually needing major work done, in particular with the oddball fuel system. The repairs are also expensive. Some dubbed it "The Marriage Breaker!"
We had typical problems developing with the fuel injection system and the oil rail pressure switch, and who knows what else! I visited a couple of diesel injection specialists, but was told in no uncertain terms that Holden were the only people that would touch them. I obtained a quote, just for new injectors - $4200.
With all this information, and especially with the stories of others who'd spent $1000's and ended up with the problems returning only months later, it scared me off them. We are not high income earners, so we decided not to take the chance on doing expensive repairs. Neither did we want to rip someone else off by selling our problems to them.
After a few weeks we couldn't even get it to start. It was stuck in the driveway.
I decided to do an engine conversion.
I have written these instructions hoping it might be of help to others who are in a similar situation.

Conversion Overview-

The 4JB1 engine came out in Jackaroos from the mid eighties until early nineties, MU wagons (Holden Frontera) and Rodeo utes during the nineties also. From the small amount of research I did, it has a good reputation for a solid and reliable little engine. There is another engine, the 4JG2, which is a 3.1 litre indirect injected (traditional style with injectors in intake ports). This engine came out with Jackaroos from 1991 to 1998. Both are pushrod engines with turbos.
The 4JB1 is a 2.8 litre direct-injection (injectors are in the chambers). It produces around 75Kw and 290flb torque, depending who you talk to!
Keep in mind that the 4JX1, although problematic, produces an impressive 118Kw/330flb torque. A few others have done this conversion, and most have done a few mods to generate more power. I'm of the mindset that generally, the more power you extract from a certain displacement sized engine, the faster it wears out, so it's personal choice, but others have fitted bigger turbos and run higher boost etc etc.
The later model Jackaroo is a 2 tonne vehicle, so 75 Kw is very sluggish. One thing I did was to top-mount the intercooler from the 4JX1 engine. Interestingly, despite what intercooler gurus say, my experience has proven to me that intercoolers do nothing in weather conditions where the air is thin – usually when the temperature gets up around 25^0c. I get a reasonable amount of extra power in cooler weather though. One

bonus from the intercooler is increased oil pressure all the time, which I presume is a side effect of cooler intake air??
When I get time I'm planning to fit the larger turbo left over from the 4JX1 engine. I would suggest others do this during the conversion process, provided your turbo is in reasonable condition, as it would be easier to mess around with while the engine is out. It will require making an adapter plate and re-plumbing oil and cooling pipes.
If you stick with the smaller 4JB1 turbo, keep in mind that this unit was an early turbo design, and should be idled for around a minute before shutting the engine off when it's hot, to avoid damage to the turbo bearings. I fitted a turbo timer to mine, which simply goes in line into the power wire to the fuel pump stop solenoid.
Please give thought to whether you want to spend a bit more time on modifications, or whether you're willing to put up with your Jackaroo being a bit of a snail. At least it will start every morning and get you there.

The upside I've found with the 4JB1 engine is the excellent fuel economy. It achieved 9.5 litres per 100km in it's original 1991 Jackaroo body, and I'm now getting 13.5 around town and 11.6 open road in the late model body, which is 300kg heavier, even with mud tyres. The original 4JX1 3 litre engine was getting around 14 litres per 100km.

Another consideration is the registration/licensing laws where you live. You might want to contact your local office and ask whether they will allow you to do the engine swap.

By all accounts there are no differences in 4JB1 engines sourced from different models, but I cannot guarantee that. Please check things out as best you can before buying. They are most commonly fitted to the MU style gearbox, which has the bellhousing cast into the gearbox casing as one piece, and the clutch slave pushes toward the back of the car.

If you're going to do this conversion, consider whether to buy a complete vehicle as a donor, or just an engine. A complete vehicle is preferable if you want to try to retain all the electrical and vacuum features of the 4JB1 engine. If you're willing to spend the time, you could theoretically trace all the electrics and copy the features across. You'll have all necessary connecting parts and wiring that might be required to get the job done. Be aware though, this would be no easy process. Car makers change wiring colours and leave dead-ends within looms, making circuits very difficult to trace. Unless you're experienced in auto electrics, I don't recommend even trying. I would also recommend buying the factory manual for the vehicle, so you have the diagrams to work from. The manual for my 1991 4JB1 Jackaroo is $450, and it's not floating around on the internet, that I know of – feel free to let me know if you find it!
The features I'm talking about are the cold start, which is a combination of a butterfly choke and extra acceleration so it idles properly when cold. The 4JB1 engine has a reputation for not idling smoothly in the cold even when this feature *is* working. I didn't bother reconnecting mine. Instead, I fitted the hand throttle from the donor vehicle, and on cold mornings, I find I just have to wind it on a bit.
The other main feature is the butterfly at the top of the turbo dump pipe that slows the turbo when you decelerate, making for smoother gear changes. Both these things are electric over vacuum. Again, I didn't reconnect mine, and it drives fine. In fact, with less power from this engine, the extra revs going into the next gear are welcomed.

Some of the cost of a donor vehicle can be retrieved afterwards. My donor Jackaroo cost me $3,100. The body on it was a bit rough, so I recouped about $500. If I did this job again, I would confidently buy the engine only, and I recommend this. The 4JB1 is very easy to hook up. There's no ECU (computer), and if you're not fussed about the cold start, the only thing to connect to get the engine to fire up is a single wire to the fuel pump.
When you buy your donor engine, try to get the following peripherals:
*AC compressor
* AC hose from firewall to compressor
* Alternator
* Pwr steer pump
* Pwr steering hoses
* Cut the wiring loom on the *body* side of the connector plug, leaving enough wire to connect onto. It's a good idea to keep the connector plug with the conversion in case you ever need to remove the engine again later. It will make it quicker and easier.
Another thing to consider is some minor differences in 4JB1 engines. The ones that came out in Rodeos (Isuzu MU), were geared more toward commercial use. They have steel timing gears (you can tell by the alloy timing cover). My engine came from a Jackaroo, and it has a timing belt, which I was inclined to replace when I fitted the engine because I didn't know its age/history. This was just another expense. An upside to my engine is that it has a larger oil filter – same filter as the 3.1 litre 4GJ2 engine. I think it has a larger oil cooler as well. I have heard of people having temperature issues with the smaller ones because they're right next to the dump pipe.

The clutch will not be needed. The larger 4JX1 dual-mass flywheel and clutch will be used. Be aware that if your vehicle has had the clutch replaced already, in some cases people change the factory dual-mass flywheel for a traditional style, single-mass flywheel. These instructions are based on a dual-mass unit. Whatever clutch setup is working fine in Your late model should be okay, as it will remain with the existing gearbox, and the spigot position is the same.
I used the radiator from the late model body, and it cools just fine in all weather conditions. In South Australia where I live, we have 40^{o}c + days in summer and I've had no problems.
I have been unsuccessful at connecting a tacho to my engine, so I can't help with that, but I'm still researching that. Others have successfully rigged-up their original tacho with the use of an aftermarket interface. See:
http://www.dakotadigital.com/index.cfm/page/ptype=product/product_id=128/category_id=287/home_id=59/mode=prod/prd128.htm
If you want to save time, a good auto electrician might be able to sort it out for you.

I'm not a mechanic by trade – only a back-yarder. I'm a signwriter by trade. Anyone with a bit of nous can do this engine conversion.

Instructions -

These instructions are based on using a 4JB1 turbocharged engine from a 1991 UBS 55 Jackaroo.

Terminology: ‘new engine’ refers to the 4JB1 (donor) engine. ‘Old engine’ refers to the 4JX1 engine.

Do not discard or sell any donor vehicle or peripheral parts you may have, or the unwanted 4JX1 engine, until the conversion job is entirely finished. Any available parts may come in handy for reference when it comes time to reconnect things.

Donor vehicle:
(If you have an entire vehicle), remove the bonnet.
Label the power wire to the fuel injection pump. On my UBS 55, this wire was black with a yellow stripe. Just behind the pump it has a plastic connector with a small sticker with the number ‘73’. If your engine is running, start it up and put a trouble light on the wires, or disconnect the wires from the pump one at a time to find out which one it is. Cutting of this power source is what stops the engine anyway.
Disconnect the battery.
Turn the heater control to heat, and drain the radiator. Remove the radiator.
Remove the clutch fan.
Disconnect everything that’s connected to your engine. Plug all hoses.
Leave the alternator, air con pump and power steering pump on the donor engine. Just disconnect them. Cover the entry points.
Unplug the single wire to the air conditioning compressor.
Undo and roll-back the floor covering, remove the gearstick boots and remove the gearstick and transfer lever.
Unbolt the exhaust pipe at the flange at the bottom end of the turbo dump pipe.
Mark and unbolt the front and rear universal joints and the mid tail shaft universal joint support.
Support the engine with a chain block or large engine hoist.
Support the gearbox/ transfer case, preferably on some kind of trolley. I used a sturdy old plywood skateboard, which worked a treat! Be aware these 4WD gearboxes, are heavy units. Don’t get under it!
Unbolt the gearbox cross-member. Unbolt the gearbox bell-housing bolts.
Unbolt the engine mounts. This is best done by removing the two bolts each side which face diagonally downward toward the chassis rails. You can reach these easily from inside the wheel wells.
Slide the gearbox back a good few inches until the gearbox main shaft drops out of the clutch.
Remove the engine.

Receiving vehicle:
Remove the bonnet.
Disconnect the batteries.
Turn the heater control to heat, and drain the radiator. Remove the radiator.
Remove the clutch fan.
There are 3 major electrical plugs connecting the engine to the vehicle. Simply unplug these at this stage.
Strip the shielding back from the gearbox wiring loom from the front, just past the point where it passes the firewall. Some of the wires connect into the engine loom, and some go directly to two of the 3 connector plugs to the car. Cut the ones to the engine.

NOTE: When cutting wires, leave as much length as possible. It's easy to cut more back later, but painful to add more length. At the very least, cut them at least 3 inches away from any connector plugs. If they're cut too close to a plug, it can make it very difficult if they need to be reconnected to something later on, especially on the plug side.
Disconnect the power steering lines at the pump (the pump is set into the engine block in the 4JX1).
Disconnect all hoses to the engine. Plug all hoses connected to the vehicle. Keep them clean.
Undo the interior console covers. Remove the gearstick boots and remove the gearstick and transfer lever.
Unbolt the exhaust pipe at the bottom end of the turbo dump pipe, and in front of the muffler. Take it out the way.
Mark and unbolt the front and rear universal joints.
Support the engine with a chain block or large engine hoist.
Remove the clutch slave cylinder (no need to disconnect the hose, just tie it up out the way). Remove the oval shaped inspection plate on the bellhousing. Put a large screwdriver through the inspection hole. Push it between the thrust bearing and the flange ring on the back of the diaphragm. Twist it sideways to wedge the two apart. You'll know when it's disconnected, because the thrust bearing will move back from its fixed position when you poke it with the screwdriver. You'll need to shine a torch through the hole to see all this.
The gearbox will not disconnect from the engine until you get this thrust bearing disconnected.
For more detailed information on the Jackaroo pull-style clutch, refer to this excellent resource from Perfection Clutch:
http://www.youtube.com/watch?v=Sf0g1BzkDjI
Support the gearbox/ transfer case on your trolley.
Unbolt the gearbox crossmember.
Unbolt the gearbox bell-housing bolts.
Take care with the clutch on the 4JX1 when separating the gearbox and engine. They are a pull-style clutch, and the ring around the diaphragm fingers is a bit pathetic. It's prone to being damaged easily by banging into the spigot shaft.
Slide the gearbox back a good few inches until the gearbox main shaft clears the clutch.
Unbolt the engine mounts. Again, remove the two bolts each side which face diagonally downward toward the chassis rails. You can reach these easily from inside the wheel wells.
Remove the engine.

While both engines are out, swap the engine mounts over between the two engines. Although the engine blocks differ in shape on the passenger side, the bolt pattern is still the same. Between the two engines, you have all the spacers and bolts needed to swap the engine mounts. It is necessary to swap them because although they look similar, the chassis mounting height is different. I discovered this the hard way!
Also swap the oil sender unit from the old engine onto the new one. The sender units work in reverse to each other, so the 4JX1 unit must stay with the car. It screws straight in.

Remove the clutch. Inspect the condition of the clutch. If it's very worn at all, now's the time to replace it, while the engine's out. The flywheel surface needs to be inspected too, as the dual-mass one is prone to hot-spots. If it's discoloured or has cracks, replace it. If it does need replacing, you may want to look into converting to a single-mass flywheel, as it will be a lot cheaper to replace next time. Either way it will cost a lot now. The clutch kit for the dual-mass unit is around $750, or around $1,500 with a new flywheel.
Remove the dual-mass flywheel off the crank, taking care to remove the bolts in opposing order.
Remove the alloy spacer plate from the back of the engine block. This spacer plate will be used to connect the donor engine with the existing gearbox.
There are some modifications required to be made to this spacer plate. This plate will become the crucial link between your new engine and your existing gearbox, so these modifications must be done carefully. If this plate becomes damaged another one will have to be sourced, and that could involve removing another engine somewhere to obtain it!
Keep the bolts from the spacer plate. Note that the bolts have the same looking heads, but there are two thread types. These bolts will also be re-used on the new engine.
From a fastener store, obtain the following bolts, all number 8 high-tensile, hex head, ***not*** flanged head (flanged heads will be too deep):
*4x 16mm 1.5mm thread pitch, 60mm long
*2x 12mm 1.5mm thread pitch, 20mm long
*1x 10mm 1.0mm thread pitch, 50mm long, with thread full length of the bolt shank (this will be cut to an odd length later). Nut and flat washer required for this one also.
*16mm/1.5mm thread tap (starter or intermediate) & handle
*14.5mm & 17mm drill bits
Using a 4" angle grinder, carefully cut the dowel protruding from the top back of the new engine's block down to half its length. Do not cut it right off, as it is handy for aligning the spacer plate accurately. You will notice that the exact same thing was done to the 4JX1 dowel in the factory, so that it didn't foul with the back of the flywheel.
On the spacer plate there is a hole which aligns with a hole in the new engine. On the new engine, this hole is through a web flange section of the block right behind the oil cooler. On the inside face of the spacer plate, there is a raised lump around this hole. Using a grinder, carefully grind this lump away so it becomes flat (flush with the rest of the plate surface).
This must be ground down otherwise the bolt heads that hold the plate to the back of the engine will foul with the ring gear on the dual-mass flywheel.
The top two and bottom two gearbox bell-housing bolts will no longer fix the gearbox directly into the engine block. You will notice they partly overlap the smaller outer circumference of the new engine's rear block surface. There is no room for them to accept nuts on the engine side. This means that the spacer plate now becomes the crucial link. The engine is fixed only to this plate, and this plate only is fixed to the gearbox. The gearbox side retains it's integrity with the same amount of fixings as previous, but the engine side needs to be fixed as securely as possible.
The top two and bottom two bellhousing bolts previously passed through the spacer plate and thread into the engine block, but now these holes in the spacer plate need to be drilled and threaded to accept new 16mm bolts from the gearbox side, so the gearbox has something to fix into.

Drill through from the gearbox side using the 14.5mm bit. Using plenty of lubricant (WD 40, RP 7, equivalent brand aerosol, or specialist cutting oil), thread the holes using the 16mm tap. The plate is cast alloy, and although soft, it is very ‘sticky’ metal, and it’s a thick piece of metal to thread by hand, so care must be taken not to apply too much pressure and snap the tool off in the hole. Only proceed a quarter of a turn at a time, and undo the tap half a turn each time, applying oil with every advancing move. Take your time. This took me about 3 hours to do the 4 holes!

For bolting the spacer plate to the block, there are already two bolts which align on the bottom half. The two bolts (fine thread) from the old engine will fit the bill here. There are two more already aligned fixing points either side in the middle, close to the rear of the crank. The two other bolts will fit here (course thread).
At the top there are two existing holes which align, but they are both on the driver’s side. This leaves the top passenger side a little vulnerable, strength-wise. You will see a hole with matching 12mm thread on the top passenger side of the engine block, just near the dowel you cut down. Measure the position of this hole. Carefully transfer this measurement onto the ***inside*** of the spacer plate and drill a 12.5mm or half inch hole through the plate. The reason we’re drilling through from the inside of the plate is because the hole lands right smack on a lip in the casting on the outside, making it hard to start a drill bit from the outside. Your new 12mm bolts will fit the top two fixing points now.
The other driver’s side hole is the one already mentioned near the oil cooler, where the lump was ground down. For this one, use the new 10mm bolt and nut. Fit the plate onto the rear of the engine. The dowel will align the top. Place all the bolts in and just nip them up a little. Place the 10mm bolt through from the flywheel side and put the nut and washer on from the oil cooler side. You will need to cut this bolt to exactly the right length so that it fits behind the oil cooler and pulls up tight. Nip the nut up a little.
Put the dual mass flywheel in place, just sitting it onto its flange. Make sure it’s sitting flat on its flange the whole time, and rotate it a little. It needs to rotate freely without the ring gear rubbing on any of the bolt heads. This is very important. You don’t want to put the whole thing in the car and hear the terrible noise of your ring gear teeth being ground down when you get the engine running!
If the 10mm bolt is rubbing on the ring gear, make sure that lump is completely gone. If it still touches, grind a little bit off the bolt head, carefully, using a bench grinder. Make sure it’s even, and do not overheat it to the point of discolouring, or it will lose its correct temper.
Re-check the flywheel clearance until you’re certain nothing is rubbing.
Fit the spacer plate onto the engine block and tighten all bolts.
Now is the time to replace the spigot bearing if you’re fitting a new clutch kit.
Fit the dual mass flywheel.
Fit the clutch. A clutch aligning tool is optional, but can make fitting of the gearbox much less of a nightmare.
Using the 17mm drill bit, drill out the top two and bottom two bolt holes in the gearbox bellhousing (the ones where the new 16mm bolts will be used).
Now you’re ready to fit the new engine.
Carefully lower the engine in place, periodically using a torch to look through the clutch inspection hole in the bellhousing to make sure the spigot shaft does not damage the clutch diaphragm ring as it passes through.

Once the engine is in position, place one bolt finger-tight in each engine mount. This allows a bit of tilting when fitting the gearbox to the engine. Also leave the chain block/hoist in place for now. This helps support the engine and is handy for adjusting the tilt angle of the engine to match the gearbox, especially if you do not have a hoist and transmission jack.
Fit the gearbox. Just put in 2 or 3 bolts at first. You might have to fiddle around with which of the original m14 bolts fit in which holes now, as you've changed the length of the holes with the new setup.
By pushing against the clutch fork, click the clutch thrust bearing sleeve into place, fit the slave cylinder and test-operate the clutch from inside the car.
If everything is ok, fit all the bellhousing bolts and engine mount bolts.
Reconnect the drive shafts.

The power steering pump on the new engine runs the power steering on the later model just fine. The steering box is actually the exact same unit as the UBS 55 Jackeroo.
Unclip the metal power steering lines from the driver's side, along under the radiator supporting panel. Undo the nut that holds its end onto the bracket on the passenger side chassis. Raise the whole thing up a little along the bottom and re-fix. I used one of the power steering line clamps from my donor vehicle which had more scope for movement. These lines need to be lifted up because the hoses on the new engine will not quite reach otherwise. Connect the power steering hoses from the new engine to the lines and re-fix the lines to the passenger side bracket. You may need to re-manufacture this bracket if you can't get enough reach. It's important to get enough slack in these hoses. A diesel engine rattles like mad its whole life, so anything that's too tight will break down sooner or later. Any metal parts will suffer metal fatigue and crack.
I used the power steering fluid reservoir from the late model Jackaroo and fixed it to a custom made bracket I bolted in to the holes where the CPU used to be bolted. My custom bracket also holds my fuel filter assembly.

Use the accelerator cable from the new engine. The 4JX1 has an electronically controlled accelerator butterfly, but the pedal assembly still has the fittings etc to accept a cable.
There are 2 rectangular grommets in the firewall of the late model vehicle, left-over from the nineties pre-electronic models. Remove the one closest to the cable slot in the top of the accelerator pedal assembly, and fit the cable from the fuel pump through it, using the grommet that went with the cable. Adjust the cable at the fuel pump end so that the pedal operates it correctly. Make sure that when the pedal is flat to the floor it's not pulling against the end travel of the linkageon the pump, or it could do damage to the pump. Injector pumps cost between $1,500 and $2,500 to have fully rebuilt. I know because I had mine done recently.
Also make sure that you are getting the full acceleration when the pedal is all the way down. Accelerator pedals are finicky things. If their sprung too loosely or too tightly, or if they're angled wrongly, you can get a sore leg on a long trip. I had this with mine and ended up re-shaping it after a trip interstate. The electronic models have an extra spring on the pedal assembly itself, to give the driver the right amount of pressure. This can be removed if the pedal proves too hard to press over long periods.

Fit the original 4JX1 starter motor and connect cables as before.

From the plug on the new engine's loom, connect the black w/ yellow stripe wire to any constant ignition-only power source. This is the power for the fuel pump stop solenoid, which is the only power source the 4JB1 engine requires to run. Cutting this power (when ignition turned off or back to accessories), cuts the fuel, stopping the engine.
It does not require any real current to speak of, but make sure you use a power source which is fused low – no more than 10 amps. This is to protect the injector pump. They are expensive! If you want to, you can connect the fuel line and the fuel return line from the fuel pump, then start it up briefly at this stage (don't run it for long without water). If you bought a second hand engine, change the oil and filter first.

Regarding the alternator, unfortunately the nice big Hitachi 90 amp unit from the 4JX1 can't be used. The 50 amp unit from the new engine must be used because it has the vacuum pump at the back, which is needed to run the power brakes. Do not try to run the brake booster from intake manifold vacuum. This engine does not provide enough to run it satisfactorily. Besides that, it's not worth compromising on braking specs. Use the vacuum pump!
The 50 amp model will give you enough spark to run all the day-to-day stuff and charge a spare battery at the same time, but if you want to run high-power spotties or the like, consider a second alternator for this perhaps?
The 90 amp late model alternator had 2 main charge wires, whereas the new one only has 1.
I can't help with the connection of the alternator because I got mine wrong and ended up taking it to an auto electrician red-faced! I'm fortunate I didn't fry the whole system up. If you're not experienced with this type of thing and you don't have the equipment to test the wiring, I suggest going to an auto electrician straight-off.
The auto electrician interfaced the late model wiring with the earlier alternator for me. I did experience a problem with a loose charge wire while holidaying in Sydney (Konked-out on the motorway with 5 kids in the car), and the guys at Campsie did a fantastic job, not only repairing it, but researching from both manufacturers' books and re-interfacing it so it charged properly at idle etc, and fitted a new supply to the exciter side with an independent fuse etc.

The back of the alternator has 2 vacuum outlets; a 10mm and a 5mm. Get a new length of 10mm or 3/8 vacuum hose (make sure it's proper hose specifically for vacuum – fuel or water hose will not do. Don't take chances with brakes. Cheap hose can suck-in and squash, and stop the flow of vacuum). Connect from the 10mm outlet to the brake booster. Don't share this vacuum source with any other accessory. Hook it up directly.
My Jackaroo has the SOTF (Shift-On-The-Fly) 4WD system, so I will explain the vacuum and wiring for that. If yours is manual locking hubs you will have less work to do. If you have the full traction-control model, I'm sorry; you're going to have to figure it out for yourself.
I managed to hook up all the smaller diameter vacuum lines using what hose came off the two vehicles.
Connect the 5mm outlet at the back of the vacuum pump to the line that goes to the vacuum tank/SOTF front axle mechanism, but put in a T junction. I suggest putting it between the battery and the master cylinder on the driver's side of the engine bay. The

other end of the T goes to the left-hand (grey) vacuum valve (feeds all the electric-over-vacuum gear).
At the front axle, there are 2 vacuum lines that exit the SOTF mechanism. One went to the old engine and the other gets looped around with the axle breather hoses. Block them both off at their ends.

When it comes to the air conditioning compressor, the one from the new engine must be used because the later model one is longer and does not fit in front of the turbo intake. We live in a hot climate and the smaller older compressor has powered the air conditioning fine so far. I had my auto electrician hook it up using the hose from the donor vehicle, because it requires a different style fitting on the compressor end to what the later model compressor takes. If you don't have a donor vehicle, you will need to get a new hose made up. I needed to take it to him anyway, to get it gassed up. If you successfully fit the turbo from the old engine, you may have enough room to retain the bigger compressor, if you've been able to use the intake setup to the turbo from the old engine as well. You would still need to make new mounting brackets.

From the new engine's loom, connect the yellow w/ black stripe wire to the yellow w/ black stripe on the blue car plug. This is the temperature sender.
Reconnect the yellow w/ brown stripe from the top of the oil pressure sender to the yellow/brown wire on the blue car plug. The oil pressure setup is now back to original. The 4JB1 engine runs much lower oil pressure than the 4JX1 engine. Don't panic, it just does. My gauge barely moved from the zero mark at times, until I fitted the intercooler.
The green w/ red fleck wire from the engine loom is the AC compressor wire. I regret that I didn't write down what this connected to. Using a trouble light, turn the ignition on and test each terminal inside the blue body plug with the dash AC switch on then off. Whichever terminal powers up only when the AC switch is on will be the one.
The glow plug activation used to be handled by the CPU, so a new loop will need to be run from the glow plug solenoid in the black plastic solenoid/fuse box in the driver's side of the engine bay, to the dash with a switch. I picked up a momentary switch from an electronics store for this. Then reconnect the power wire from the old engine which ran along the top edge of the firewall, with the new engine. I'd left a length of the wire on my new engine, so I just soldered the two up and shrink wrapped it, but you could extend the wire from the body onto the external glow plug rail on the new engine using a circular lug if need be. Make sure you use a good heavy-duty length of wire though, around 40 amp, because the plugs suck a lot of power and will overheat a wire that's too thin.

From the gearbox loom, Connect the red w/ blue stripe wire to the red w/ blue stripe on the blue car plug. This is the reversing lights. It used to run through the engine loom and out again.
There are 2 black w/ pink stripe wires in the gearbox loom. Earth both of them to the body. This enables the SOTF system to work. They are the 4WD select button on the dash, and the transfer gear lever detent lock-out. The little green 4-wheel light on the dash will be on while 4WD is engaged, but when it's not engaged it will forever flash while the ignition is on. It only used to flash while trying to connect 4WD. It's not doing any harm, it just flashes without the old CPU in place. If it drives you completely nuts, take the globe out of the dash!

All other wiring, both in the engine loom and the body-to-CPU connector plugs, is redundant. I didn't like the idea of chopping it all off, so I trimmed them with enough wire left in case I ever wanted to reconnect anything, then I bent them all over together, put them in big heat shrink wraps with some silicone to keep water out, and heat-shrunk them.

Anywhere I joined wiring I soldered it then covered the joins with heat shrink tubing so I won't have problems with it in future.
Tidy up all the wiring and cover it with appropriate sized plastic flexible conduit, which you can buy in a packet at the local parts store.

Put the radiator back in with some new coolant. The bottom hose will match up, but I had to source a hose for the top. The 4JX1 has a 2" intake at the top, the same as the radiator, whereas the 4JB1 engine has $1^{3/4"}$ at the top. I found one of those old-style spring reinforced generic hoses for the top, with the correct sizes at each end.
I found I needed to spend a bit of time sorting out the air intake from the late model air cleaner assembly to the turbo. I used the original 4JB1 elbow piece at the turbo end, but I cut it shorter over the front of the rocker cover. I also used the original 4JX1 concertina piece from the air cleaner end, but I sourced a small length of heavy duty marine-grade reinforced rubber exhaust hose to join the two together over the front of the engine. The exhaust hose and the top radiator hose I sourced from an industrial hose specialist outlet.
Whatever you do, the intake must have some sort of concertina section to allow for the continual side-to-side rattle of the engine – especially with a diesel.

That's really about it. I hope this has been helpful.

Following are some photos.

Before removing the 4JX1:

Removing:

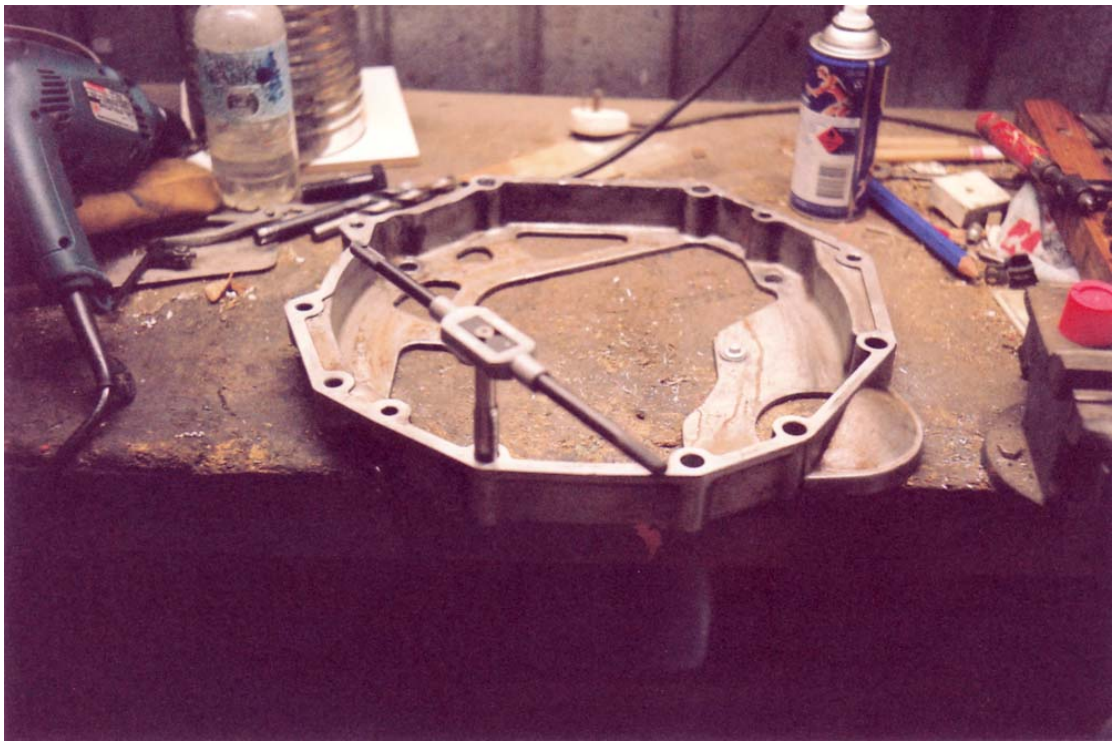
4JX1engine:

Removing 4JB1 engine:

4JB1 engine after
removal:

Donor car:

Spacer plate
modifications:



Drilling out the bell housing to accept larger bolts:

4JB1 engine going
in:

New look engine bay (before intercooler fitted)