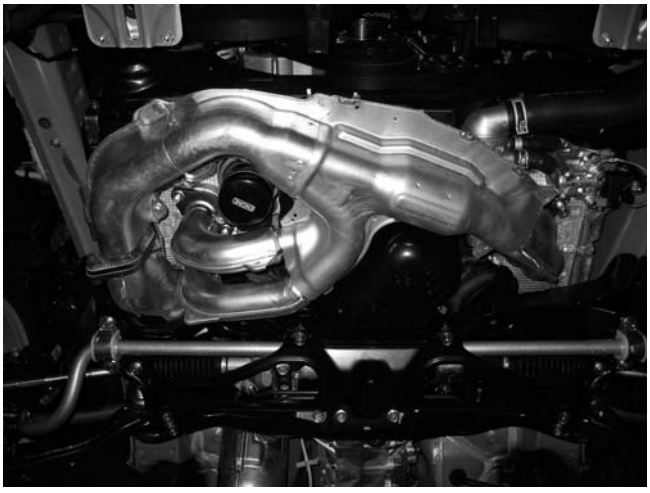
Boost Control Solenoid



Twin Scroll Exhaust Manifold

14.2.1 IHI Turbochargers

Still undiminished in popularity is the expanded range of IHI bolt-on turbos readily available to suit anywhere from mild to wild power increases:

> ***Note,** unless mentioned otherwise, all power figures quoted are measured as at the hubs using a Dynapack type hub dyno, and are achievable using a package of basic supporting mods including exhaust and intake changes with associated upgrades to engine management.*

Early Model IHI

VF24 and VF28 - Still the turbocharger of choice for 2.0ltr Automatic transmission WRXs and GT Foresters, especially if only mild increases in power are the desired target. Producing good boost pressure from as little as 2,900 RPM it gives strong bottom end and mid-range at the expense of top end performance. 1.1Bar at around 6,000 RPM is about the maximum amount of boost pressure the VF24 will happily produce on a 2.0ltr engine. Less desirable is its relatively expensive price. For what ever reason the VF24 has remained an expensive choice, costing around A$2,000 each.

VF23 - another perennial favourite for middle-of-the-road power increases for the 2.0ltr engine. Boost delivery starts strongly from around 3,200 RPM, and efficiently makes up to 1.2 Bar of boost pressure at around 6,500 RPM. Power outputs in the region of 180kW ATW are possible with the right combination of bolt-ons and engine management. Lag is still pretty minimal, a strong point of its advanced roller bearing CHRA design. The VF23 costs around A$1,575.

VF22 – The old undisputed king of easy bolt-on turbo power. Still popular due to its low price, easy availability and good power potential on 2.0ltr engines. Boosting strongly from around 3,800 RPM and is capable of running up to 1.4Bar of boost pressure at around 7,000 RPM. Advisable only with supporting engine and engine management mods, with outputs of up to 200-205kW ATW possible. Some users report a degree of unreliability with the VF22, suffering compressor blade and bearing failures, but that is offset to a degree by a lower purchase price. VF22s are around A$1,375.

Late Model IHI

VF30 – Relatively new, having appeared first on JDM model Version VII STi. It features an exhaust housing of equivalent size to the VF24, while sporting a compressor sized between a VF23 and VF22. Although being a plain bearing type design, this does not seem to detract from its performance, and has become an immediate hit with Group N and Group A Rally cars. A popular alternative to those previously using VF23 Turbos, it is a major departure from IHI's roller bearing range in that the VF30 can be rebuilt with new seals and bearings. Up to 185-190kW ATW with supporting mods is achievable, as are boost levels of 1.3Bar @ 7,000 RPM on a 2.0ltr engine. VF30 Turbos start at A$1,470.

VF34 – Very specialised JDM turbo fitted to the Spec C Version VII STi, equivalent in size to the VF30 but uses a roller bearing type CHRA. Favourites of rally teams with money to burn, they have a reputation amongst competitors for being relatively fragile, and require regular replacement as they are non rebuildable. Very responsive by nature, this can sometimes lead to problems with overboosting and poor boost control when coupled with high flow exhausts, intercoolers and intakes. Requires supporting engine managements to