



The turbocharger people

[www.btnturbo.com](http://www.btnturbo.com)

Issue 3

# turbo-zone

*Insider Turbo knowledge for the garage professional*

**INSIDE: It's always  
100% OE with BTN**



*Win the latest  
16GB iPad!*



*Now with  
3 Turbos!*



*Oil pipes  
now available.*

# Two year warranties – the BTN standard

Now there's extra peace of mind when you buy a turbo supplied by BTN. Whether it's brand new OEM or our exclusive OMX remanufactured, you can relax knowing it's covered by a two year warranty.

We already support brand new turbos, fresh from the production lines of Garrett, BorgWarner, Holset, Mitsubishi, Schwitzer or IHI, with a two year warranty against manufacturing defects. Now we've decided the quality of our OMX turbos means we can confidently back them with the same two year warranty.

OMX remanufactured turbos come to BTN direct from the original manufacturer, and use 100% OEM parts, with the correct precision calibration. So you know they'll

provide the performance and reliability you want - guaranteed.

The two year warranty applies to ALL turbos supplied by BTN, new or remanufactured, for cars, light commercial and heavy commercial applications. Turbos for heavy commercial applications also benefit from our renowned BTN 12 month no-quibble guarantee: if the unit fails for any reason, within 12 months of purchase, we'll replace it free – no argument.

Our warranties prove our quality. Ask for a turbo supplied by BTN, and be certain of performance, integrity and reliability.



# PROTECTING a new turbo

We've always advised that to ensure a successful replacement turbo installation, it's essential to find out what caused the old turbo to fail and eliminate the fault. Now we're taking our recommendations a stage further.

## Keep the oil flowing

An uninterrupted supply of clean, correct grade oil is essential for the longevity of any turbo. As turbos become more complex and work harder to extract remarkable power outputs from smaller capacity engines, that oil supply becomes more critical than ever.

## Critical applications

Deposits and blockages in the turbo oil feed pipe can reduce or even prevent the supply of oil to the turbo, leading to serious, often terminal damage. To reduce this risk, we recommend you fit a new oil feed pipe when replacing the turbo.

## Pipes available with selected turbos

We're now stocking new oil feed pipes

for a range of popular applications, available when you buy a BTN-supplied new OEM or remanufactured OMX turbo. This saves you the hassle of having to source the oil feed pipe separately. Fit a new pipe, and you've eliminated another potential reason for failure.

Call the BTN Sales Team on 01895 46666 to check if we recommend an oil feed pipe kit for the turbo you're replacing.



# BTN: always 100% OE, guaranteed

It's a statement that should give you total confidence: every turbo supplied by BTN Turbo is 100% Original Equipment, exactly as the vehicle manufacturer fitted.

Why is that important? It means whether the turbo is brand new or remanufactured, it conforms completely to original standards, provides the correct performance and is totally compatible with the vehicle's engine management system.

## Non-original turbos are false economy

That last point is particularly critical. Fitting a non-original turbo can generate fault codes with the engine management system – indicating reduced power, higher fuel consumption or excessive emissions.

## All the major manufacturers

With BTN Turbo, you can put all these concerns out of your mind. Our OEM brand new turbos are:

- first fit, straight from the original manufacturer's production line
- balanced and calibrated to precise, correct tolerances
- flow bench tested to provide correct performance.

As Europe's largest independent turbo distributor, BTN supplies turbos from all the major manufacturers: Garrett, BorgWarner, Holset, Mitsubishi, Schwitzer and IHI.



Find out more  
[www.bnturbo.com](http://www.bnturbo.com)  
See Products section  
for more details

# If it's not new, make sure it's OMX

## OMX - exclusive to BTN

If you're not fitting a brand new OEM turbo, you can still fit one that's 100% OE, from our exclusive OMX range of remanufactured turbos. OMX turbos come direct from the original manufacturers and include the recently launched Garrett Original Reman range. They use the correct OEM components, are assembled and calibrated

to precisely the same settings as a new unit, and factory tested to provide identical performance.

With savings of up to 40% compared to the equivalent new turbo, OMX is the real bargain buy. Our OMX range includes VNT variable turbine and REA electronic actuator turbos, and now covers an even wider range of popular older models, as we've recently added another 250 applications.

## Rebuilds – avoid the unsafe bet

The complexity of modern turbos, with their tight tolerances and critical settings, makes them very difficult to rebuild to their exact original specification. This is particularly true for the VNT turbos widely used on today's cars and LCVs. To discourage VNT rebuilds, the original manufacturer doesn't offer spares.

That means these rebuilt turbos have to use pattern parts or worn original components. And as they won't have been factory calibrated to OE settings, they might only perform properly in one part of the rev range – if at all. Why trust to luck when you can be sure with OMX?



**Garrett**  
by Honeywell

**MITSUBISHI**  
TURBOCHARGERS

**HOLSET**  
TURBOCHARGERS

**turbolader**  
**Schwitzer**

**BorgWarner**  
Turbo Systems

**IHI**

# Two turbos good, three turbos better

There was a time when a car with twin turbos was a real rarity – remember the Maserati Biturbo from the 1980s? These days two-stage turbocharging is much more widespread, with combined compact high-pressure and larger low-pressure turbos delivering extra power across a wide rev range, with impressively low fuel consumption and emissions.

Now BorgWarner have gone one step better, with their incredible R3S triple-stage turbocharger designed specifically for BMW's M550 and XM50 diesel models.

## **Instant response**

The R3S uses two small high-pressure turbos and one large low-pressure turbo. One of the high-pressure turbos operates at low revs, just above idling speed. With its low moment of inertia, it reacts instantly to force air into the combustion chambers. The exhaust gas then activates the larger turbo, which provides significant extra boost from 1,500 rpm upward.

## **A constant surge of power**

From around 2,700rpm, a pressure controlled exhaust flap opens to allow gas flow to the second high-pressure turbocharger. This supplements the other high-pressure turbo and allows the large turbo to deliver its full output.

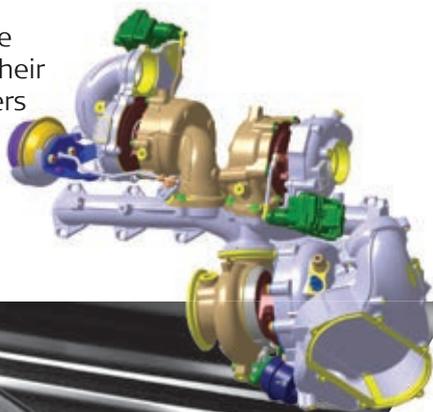
## **Complex control**

With all three turbos providing boost, huge amounts of air are supplied to the combustion chambers. To prevent overboosting or excessive exhaust back pressure at high engine speeds, a waste gate and pneumatically actuated flaps provide exceptional precision control. A primary charge-air-cooler and separate intercooler, both supplied via a low-temperature water circuit with dedicated electrical pump, keep the turbo-boosted air at optimum temperature.

## **Astounding efficiency**

Yes, it's complicated, but it's also spectacularly efficient. The R3S helps the BMW M turbodiesel produce 125hp per litre, with a power output of 381hp and incredibly 740 Nm torque from 2,000 rpm to over 3,000 rpm. At the same time, it meets the new Euro6 emissions standard and allows the M550d xDrive model to return 45mpg.

BorgWarner's two-stage R2S turbos are undoubtedly clever and effective. But their new R3S triple-stage turbocharger offers a power increase of almost 25%, with around 8% lower fuel consumption. Two turbos are good; three turbos working together are incredible!





# WIN THE LATEST 16GB iPad!

Win a 16GB iPad\*, with Retina display worth £499 in our FREE Prize Draw.

To enter the iPad Draw, just answer three simple questions:

1. How long is BTN's warranty on new OEM and OMX turbos?
2. What new products does BTN now stock to help protect turbos?
3. How much can you save with an OMX turbo?

Submit your answers at [www.btnturbo.com/ipadraw](http://www.btnturbo.com/ipadraw)

The new iPad gives you vibrant colours and razor sharp text, thanks to its breakthrough Retina display. With WiFi and 4G capability, a 5MP iSight camera, the new iPad is a versatile tool for fun and work. You can use it to surf the web and explore the wealth of useful info on [www.btnturbo.com](http://www.btnturbo.com)

\*iPad only. Contract for Wi-Fi and 4G connections not included with prize.

## Prize draw terms and conditions.

1. Entry is by registering on [www.btnturbo.com/ipadraw](http://www.btnturbo.com/ipadraw) No purchase necessary. 2. All fields on the entry web page must be completed. 3. Entries must be received by 31st August 2013. Only one entry per person. By entering this Prize Draw, you agree to abide by and accept all the terms and conditions. 4. The winner will be chosen at random on 6th September 2013 and notified by 14th September 2013. 5. The draw is open to UK residents aged 18 or over, other than employees of BTN Turbo, their agents and families. Entries submitted by agents or third parties will not be accepted. 6. The prize is one Apple 16GB iPad WiFi + 4G, to the latest specification available at the time of the draw. There is no cash alternative. The winner is responsible for arranging any contract and internet connection required, which are not included in the prize. 7. By entering this Prize Draw, you agree to receive further communications from BTN Turbo. You may opt out of receiving further communications at any time. 8. The name of the winner may be obtained by sending a written request and SAE to the address below on or after 14th September 2013. 9. BTN Turbo's decision is final and no correspondence will be entered into. Entries that do not comply in full with these rules will be disqualified. 10. iPad® is a trademark of Apple Inc., registered in the U.S. and other countries. 11. BTN Turbo reserves the right to alter, amend or cancel this Free Prize Draw without prior notice in the event that unforeseen circumstances make this unavoidable. In such circumstances, BTN Turbo will have no liability to any entrant. The promoter is BTN Turbo, Unit 2, Zodiac Park, High Road, Cowley, Uxbridge UB8 2GU.

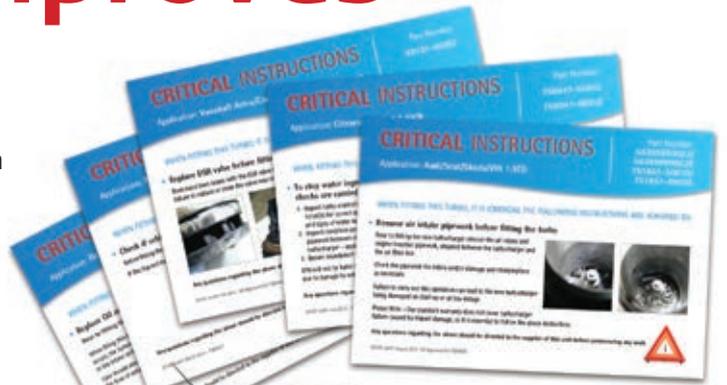
SEE WEBSITE FOR FULL TERMS AND CONDITIONS

# BTN advice improves installations

We've recently expanded our range of critical instruction sheets to help you achieve successful, trouble-free replacement turbo installations.

Based on feedback from vehicle technicians, factors and turbo manufacturers, the instruction sheets highlight potential problems. One of the latest explains the need to check for an ECU update on certain Nissan models. If this hasn't been implemented, the new turbocharger could fail due to overspeeding.

We also have critical instructions for several applications that require new oil feed pipes, and there's more about this in 'Protecting a new turbo' in this issue of Turbozone. Using our Turbo Search facility on [www.btnturbo.com](http://www.btnturbo.com) automatically shows if there are critical instructions for an application.



#### Turbo Tech

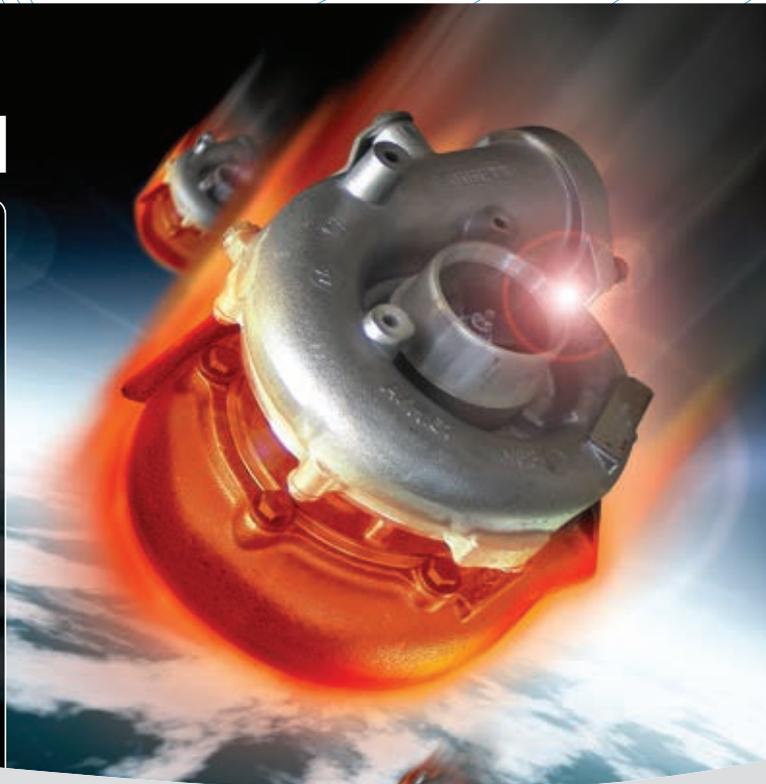
Check our vehicle alert Critical Instructions before you fit your turbo  
<http://www.btnturbo.com/spinductor/vehicleAlerts.aspx>

## THE BEST TURBO SERVICE ON EARTH

There are several good reasons why BTN Turbo is the world's largest independent turbo supplier. We offer you the benefits of:

- nearly 40 years' turbo experience
- massive stocks of over 17,000 turbos for rapid delivery – faster than most franchised dealers
- brand new OEM turbos from all the major manufacturers
- OMX Original Manufacturer's Remanufactured turbos
- two year warranty on all turbos
- a free FitKit with 95% of our listed turbos
- our renowned Turbo Helpline: 01895 466663
- Informative, comprehensive and searchable web site [www.btnturbo.com](http://www.btnturbo.com)

That's why we can confidently say, BTN Turbo provides the best turbo service on earth.



The turbocharger people

Contact your local factor for a BTN Turbo or call us to find your local stockist.

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BTN Turbo is the only UK supplier for all major turbocharger brands.

