Misalignment Effects

Misalignment	Effect
Road wheels are correctly aligned but crabbing due to road camber	All tyres will wear equally.
Shows road wheels 'Toed-out' in motion	RH front tyre will wear faster.
Shows road wheels 'Toed-in' in motion	LH front tyre will wear faster.

Alignment Precautions

The following alignment precautions should be observed:

1. The vehicle should have come to rest from a forward movement. This ensures, as far as possible, that the road wheels are in natural running positions.
2. It is preferable for alignment to be checked with the vehicle laden (Refer to 'Specifications', page 4-0-2).

Road Wheel and Tyre Balance

Static Balance

For smooth riding, precise steering and the avoidance of high speed 'tramp' or 'road wheel hop', all tyres are balance checked to predetermined limits. To ensure the best degree of tyre balance, the tyres are marked with yellow spots on the outer sidewall and these indicate the lightest balance point of the cover.

The original degree of balance is not necessarily maintained. It can be affected by uneven tread wear, tyre removal or refitting, by road wheel damage or eccentricity. The vehicle may also become sensitive to imbalance due to normal wear of moving parts. If roughness or high speed steering troubles develop and mechanical investigation fails to disclose a possible cause, road wheel and tyre balance should be suspected.

⚠ WARNING ⚠

IF BALANCING EQUIPMENT IS USED TO DYNAMICALLY BALANCE ROAD WHEELS, ALWAYS JACK BOTH REAR ROAD WHEELS OFF THE GROUND WHEN REAR ROAD WHEEL BALANCING, OTHERWISE DAMAGE MAY BE CAUSED TO DIFFERENTIAL. THIS IS DOUBLY IMPORTANT IN CASE OF VEHICLES INSTALLED WITH A LIMITED SLIP DIFFERENTIAL, AS IN ADDITION TO POSSIBLE DAMAGE TO THE DIFFERENTIAL, THE VEHICLE MAY DRIVE ITSELF OFF THE JACK OR STAND.

Dynamic Balance

Static imbalance can be measured when the tyre and road wheel assembly is stationary. There is another form known as dynamic imbalance which can be detected only when the assembly is revolving.

There may be no heavy spot, i.e. there is no natural tendency for the tyre and road wheel assembly to rotate about its centre due to gravity, but the weight may be unevenly distributed each side of the tyre centre line. Laterally, the eccentric road wheels give the same effect. During rotation, the offset weight distribution sets up a situation which tends to steer the road wheel to the right and left alternately.

Dynamic imbalance of the tyre and road wheel assemblies can be measured on suitable tyre balancing equipment, and corrections implemented. Where it is clear that a damaged road wheel is the primary cause of severe imbalance, it is advisable for the road wheel to be renewed.

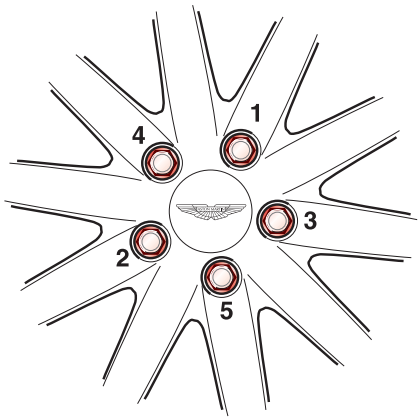
Torque Tightening of Road Wheel Nuts

Repair Operation Time (ROT)		
Item		**Code**
Road Wheel	(LHF)	**04.04.AB**
	(RHF)	**04.04.CB**
	(LHR)	**04.04.BB**
	(RHR)	**04.04.DB**

WARNING

ONLY TIGHTEN THE WHEEL NUTS WHEN THE WHEELS ARE COLD. IF THE WHEELS ARE NOT COLD THE TORQUE CAN BE INCORRECT AND CAUSE FAILURE OF THE WHEEL NUTS.

Tightening Order - TTorque tighten the nuts in the pattern shown in the figure in the two steps that follow:.



1. To 80 Nm (60 lb. / ft) in one continuous movement.
2. Refer to the Table that follows:

Vehicle	Torque
with 22 mm Wheel Nuts	135 Nm (100 lb/ft)
with Titanium Wheel Nuts	150 Nm (111 lb/ft)
with 21 mm Wheel Nuts	180 Nm (133 lb/ft)

Note: Tell the customer that the wheel nuts must be torque checked after 32km (20 miles).