

**PISTON AND RING  
INSTALLATION INSTRUCTIONS**

**NISSAN GT-R VR38DETT  
PISTON INSTALLATION INSTRUCTIONS**

Important - Before balancing, please check to make sure that you have the correct components. Used or altered parts are non-returnable.

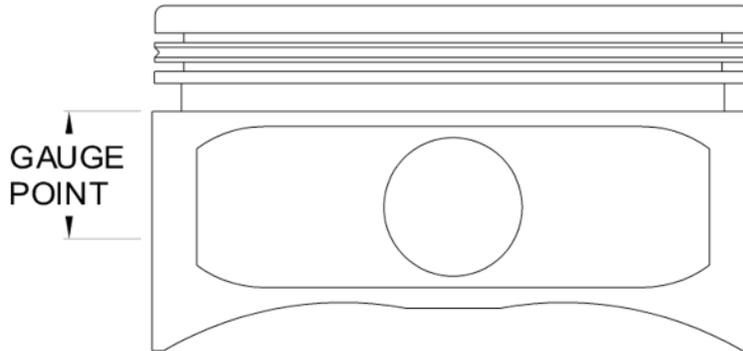
**PISTON TO CYLINDER WALL CLEARANCE**

Although piston to wall clearance preferences vary somewhat among engine builders, we recommend the following:

	<u>Gauge Point Distance</u>	<u>Uncoated Skirt</u>	<u>Coated Skirt</u>
Nissan GT-R 88.4/94.4mm Stroke (Mild Boost)	1.100"	.004"	.0035"
Nissan GT-R 88.4/94.4mm Stroke (High Boost)	1.100"	.0045"	.004"
Nissan GT-R 98.4mm Stroke (Mild Boost)	.850"	.004"	.0035"
Nissan GT-R 98.4mm Stroke (High Boost)	.850"	.0045"	.004"

Piston diameter must be measured at a gauge point, which is measured from the bottom of the oil ring. (See Fig. 1) Clearance is built into the piston based upon the finished bore size of the cylinder.

Fig. 1



Installation instructions for Nissan GT-R Grade 1, 2 and 3 Platinum Series pistons

**PISTON SIZING**

Manley Nissan GT-R bore graded pistons are manufactured to provide DROP-IN installation and correspond to the OEM Grade Range 1, 2 or 3 bore sizes. Select the appropriate mix of grade range pistons for your block's requirements. The proper clearance is designed into each grade range. Do not attempt to modify the piston to wall clearance by mis-matching the grade ranges. Corresponding Grade 1, 2 and 3 pistons will have a piston to wall clearance range of .0032" - .0039". The piston to wall clearance gauge point for the 627 and 631 series is 0.850" from the bottom of the oil ring and 1.100" for the 625 and 633 series.

**PISTON WRIST PINS AND PIN OFFSET**

Manley Nissan GT-R pistons are designed with offset wrist pins to reduce connecting rod angularity. Please note the arrow on the top of each piston. This arrow MUST point to the front of the block. The Standard Series pistons come with Premium Chrome Moly 0.180" wall (625 Series) or 0.210" wall (626, 627, 631, 633, 634, and 635 Series) pins suitable for up to 800WHP. The Extreme Duty Series come with 9310 alloy 0.210" wall pins suitable for 800-1600 HP. Engines up to 2000 HP it is recommended to install our Turbo Tuff/DLC 0.250" wall wrist pins P/N 42745. Engines exceeding 2000 HP it is highly recommended to install our Turbo Tuff/DLC .300" wall wrist pins P/N 42746.

**ROUND WIRE LOCKS**

Manley pistons are designed to retain the wrist pin with round wire locks (2 per piston). Proper installation of locks is critical!

**OIL RAIL SUPPORTS**

When included, the oil rail supports (Groove Lock Spacer) are installed on the bottom of the oil ring groove underneath the oil rail. These "RTD" oil rail supports incorporate our "Radial Tension Design". We machine a receiver groove in the piston specifically for proper installation and fitment of these "RTD" oil rail supports. The "RTD" feature prevents rotation; thus

**RECOMMENDED RINGS**

DUE TO DISCREPANCIES IN RADIAL DEPTHS OF PISTON RINGS IN THE FIELD FROM VARIOUS MANUFACTURERS, WE ADVISE USING MANLEY PERFORMANCE PISTON RINGS ON ALL MANLEY PERFORMANCE PISTONS ENSURING MAXIMUM PERFORMANCE.

SEE REVERSE SIDE FOR NISSAN GT-R PISTON RING INSTALLATION INSTRUCTIONS

# PISTON RING INSTALLATION INSTRUCTIONS

## NISSAN GT-R VR38DETT GENERAL GAPPING RECOMMENDATIONS

APPLICATION	FUEL	TOP RING	SECOND RING	OIL RING RAIL
Mild Boost up to 15lb	Gas, Alky, E85	Bore x .005"	Bore x .005"	Min. .015"
Medium Boost 16-25lb	Gas, Alky, E85	Bore x .006"	Bore x .006"	Min. .015"
High Boost 26-35lb+	Gas, Alky, E85	Bore x .0065"	Bore x .0065"	Min. .015"
Extreme Boost 35lb+	Gas, Alky, E85	Bore x .0075"	Bore x .0075"	Min. .015"

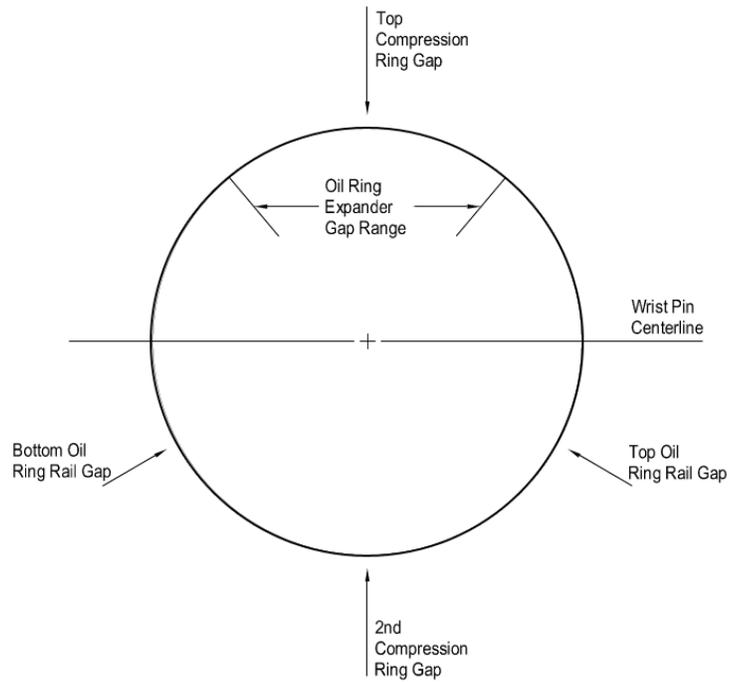
**Disclaimer:** These are general gapping recommendations and are not to be considered absolute. State of engine tune, operating environment and personal experience must also be considered.

1. File fit ring sets require filing of the top and 2nd rings to achieve the correct end gap. To properly measure the ring gap, the ring should be square in the bore 1" down from the deck. Measure the ring end gap with a feeler gauge or equivalent device. Calculate the recommended ring end gap from the chart above. (Bore size measured in inches)

2. A proper ring gap filing tool must be used. Ring filing should be done in an inward direction and square to the sides of the ring. Must de-burr all edges after filing.

3. Correct ring installation is critical. The top ring will have a shiny gray edge. When the top and 2nd ring has a dot, install dot side up. Unmarked top rings with an inner bevel install with bevel up. Unmarked 2nd rings with inner bevel install with bevel down. Narrow rings (1.0/1.2mm) that aren't marked or beveled can be installed with either side up. Do not overlap the ends of the oil ring expander. See orientation diagram.

4. Ring to piston groove back clearance should be a minimum of .005" deeper than the radial wall dimension of the piston ring. The piston ring should not stick out of the groove by any amount. Ring groove side clearance should be a minimum of .0015" to a maximum of .0030".



### Ring Seating

When first starting your engine to ensure proper ring seating, do not allow the engine to idle for long periods at a time. It is a good idea to mildly load the engine as soon as you can. Highway driving is a good way to properly seat the rings quickly. Do not idle the engine as idling does not break in any engine. Manley DOES NOT recommend the use of synthetic oils during break-in. After 2000-3000 miles on the street, or one night racing on the track, the rings should be adequately seated so that any oil you prefer can then be used.

### Cylinder Wall Prep - Stock Bores

Depending upon the mileage of your engine and the condition of the cylinder walls, you may elect to leave the bores in their current condition, introduce some crosshatch with an abrasive-ball brush hone or polish with Scotchbrite®.

### Engine Preparation - Iron Cylinders

Finish hone cylinder walls with torque plates installed if available. Recommended hone grit specification: Chrome face top ring: 280 grit. Followed by light plato hone. Finished hone with a 22-24 degree cross-hatch pattern off horizontal axis; resulting in a 44-46 degree included angle.