



XR4Ti Archived Tech Articles

2.3L Engine Service Specifications - The complete list of specifications for the 2.3 liter turbo motor, as digitized by Ryan Mattson.

Post Date: Sat, 09 Mar 2002

Subject:

List: none

GENERAL SPECIFICATIONS

DISPLACEMENT	2.3L
NUMBER OF CYLINDERS	4
BORE AND STROKE	3.780 x 3.126
FIRING ORDER	1-3-4-2
OIL PRESSURE (Hot @ 2000 prm)	40-60
DRIVE BELT TENSION	(1)
CYLINDER HEAD AND VALVE TRAIN	
COMBUSTION CHAMBER VOLUME (cc)	59.55-62.55
VALVE GUIDE BORE DIAMETER	0.3433-0.3443
VALVE SEATS	
Intake	0.060-0.080
Exhaust	0.070-0.090
Service Clearance Limit	45°
RUNOUT LIMIT (T.I.R. Max)	0.0016
VALVE ARRANGMENT (Front to Rear)	E-I-E-I-E-I-E-I
VALVE LASH ADJUSTER BORE TEMPERATURE	0.8430-0.9449
Valve Stem To Guide Clearance	
Intake	0.0010-0.0027
Exhaust	0.0015-0.0032
Service Clearance Limit	0.0055 Max.
VALVE HEAD DIAMETER	
Intake	1.730-1.740
Exhaust	1.49-1.51
Valve Face Runout Limit	0.002 Max.
VALVE FACE ANGLE LIMIT	44°
VALVE STEM DIAMETER (Standard)	
Intake	0.3516-0.3423
Exhaust	0.3411-0.3418
(0.015 Oversize)	
Intake	0.3566-0.3573
Exhaust	0.3461-0.3568
(0.030 Oversize)	
Intake	0.3716-0.3723
Exhaust	0.3711-0.3718
VALVE SPRINGS	
Compression Pressure (Lb. @ Spec. Length)	
Intake and Exhaust (Installed Load)	71-79 @ 1.52
Exhaust and Intake Valve	
Turbo (Closed) 71.3 - 78.7 lbs. @ 1.52 (317 - 350 newtons @ 38.61mm)	
(Open) 151.9 - 165.9 lbs. @ 1.12 (676 - 738 newtons @ 28.45mm)	
Free Length (Approximate)	1.877
Assembled Height	1-17/32" -1-19/32"
Service Limit	5% Pressure Loss @ Specified Length

Out of Square Service Limit	5/64 (0.078)
ROCKER ARM (Cam Follower)	
Ratio	1.4-1.6:1
VALVE TAPPET, LIFTER OR ADJUSTER	
Diameter (Standard)	0.8422-0.8427
Clearance-to-Bore	0.0007-0.0027
Service Limit	0.005 Max.
Hydraulic Leakdown Rate (2)	2.8 seconds
Collapsed Tappet Gap	
Allowed	0.035-0.055 @ Cam
Desired	0.040-0.050 @ Cam

CAMSHAFT

LOBE LIFT	
Intake	0.400
Exhaust	0.400
Allowable Lobe Lift Loss	0.005 Max.
THEORETICAL VALVE LIFT @ ZERO LASH	
Intake	0.390
Exhaust	0.390
END PLAY	
Service Limit	0.009
JOURNAL-TO-BEARING CLEARANCE	
Service Limit	0.006
JOURNAL DIAMETER	
#1	1.7713-1.7720
#2	1.7713-1.7720
#3	1.7713-1.7720
#4	1.7713-1.7720
RUNOUT LIMIT	
Out-of-Round Limit	0.0005 in. Max.
Front Bearing Location	(3) 0.000-0.010

CYLINDER BLOCK

HEAD GASKET SURFACE FLATNESS 0.003 in any 6" -).006 overall	
HEAD GASKET SURFACE FINISH (RMS)	60-150
MAIN BEARING BORE DIAMETER	2.5902-2.5910
DISTRIBUTOR SHAFT BEARING BORE DIAMETER	0.5155-0.5170

CRANKSHAFT, FLYWHEEL AND CONNECTING ROD

MAIN BEARING JOURNAL DIAMETER	
Out-of-Round Limit	0.0006 Max.
Taper Limit	0.0006 per inch
Journal Runout Limit	0.002 Max.
Surface Finish (RMS)	12 Max
Runout Service Limit	0.005
THRUST BEARING JOURNAL	
Length	1.2010-1.1990
CONNECTING ROD JOURNAL	
Diameter	2.0465-2.0472
Out-of-Round Limit	0.0006 Max.
Taper Limit	0.0006 per inch Max.
Surface Finish (RMS)	12 Max.
MAIN BEARING THRUST FACE	
Surface Finish (RMS)	35 Front 25 Rear (Max.)
Runout Limit	0.001 Max.
FLYWHEEL CLUTCH FACE	
Runout Limit	0.005
FLYWHEEL RING GEAR LATERAL RUNOUT (T.I.R.)	
Standard Transmission	0.025
Automatic Transmission	0.060
CRANKSHAFT FREE END PLAY LIMIT	
Service Limit	0.012
AUXILIARY SHAFT END PLAY	
Service Limit	0.001-0.007

CONNECTING ROD BEARINGS	
Clearance Crankshaft --Desired	0.0008-0.0015
--Allowable	0.0008-0.0026
Bearing Wall Thickness (Standard) (4)	0.0619-0.0624
MAIN BEARINGS	
Clearance Crankshaft --Desired	0.0008-0.0015
--Allowable	0.0008-0.0026
Bearing Wall Thickness (Standard) (4)	0.0956-0.0951
AUXILIARY SHAFT BEARINGS	
Clearance to Shaft	0.0006-0.0026
CONNECTING ROD	
Piston Pin Bore Diameter	0.9096-0.9012
Crankshaft Bearing Bore Diameter	2.1720-2.1728
Out-of-Round Limit	0.0004
Taper Limit	0.0004
Length (Center-to-Center)	5.2031-5.2063
Alignment (Bore-to-Bore Max. Difference) (5)	
Twist	0.024
Bend	0.012
Side Clearance (Assembled to Crank)	
Standard	0.0035-0.0105
Service Limit	0.014

CYLINDER BORE AND PISTON

CYLINDER BORE	
Diameter	3.7795-3.7825
Surface Finish (CLA)	8-24
Out-of-Round Limit	0.0015
Out-of-Round Service Limit	0.005
Taper Service Limit	0.010
Piston-to-Bore Clearance (Select Fit)	0.0030-0.0038
SERVICE PISTON SELECTION (6)	
Piston Bore Diameter	Code-Service Piston Required
3.7764-3.7770	RED
3.7776-3.7782	BLUE
Pin Bore Diameter	0.9123-0.9126
Ring Groove Width	
Compression (Top)	0.080-0.081
Compression (Bottom)	0.080-0.081
Oil	0.188-0.189
PISTON PIN	
Length	3.010-3.040
Diameter	
Standard	0.9118-0.9124
0.001 Oversize	0.9130-0.9133
0.002 Oversize	0.9140-0.9143
Piston-to-Pin Clearance	0.0003-0.0005
Pin-to-Rod Clearance	Interference Fit
PISTON RINGS	
Ring Width	
Compression (Top)	0.077-0.078
Compression (Bottom)	0.077-0.078
Side Clearance	
Compression (Top)	0.002-0.004
Compression (Bottom)	0.002-0.004
Ring Gap	
Compression (Top)	0.010-0.020
Compression (Bottom)	0.010-0.020
Oil (Steel Rail)	0.015-0.055
Oil Ring	Snug Fit
Service Limit	0.006 Max.
Ring Gap	
Compression (Top)	0.010-0.020
Compression (Bottom)	0.010-0.020

Oil (Steel Rail)	0.015-0.055
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LUBRICATION SYSTEM

OIL PUMP	
Relief Valve Spring Tension (Lbs. Spec. Length)	18.76-20.71 @ 1.172"
Drive Shaft-to-Housing Bearing Clearance	0.0015-0.0030
Relief Valve-to-Bore Clearance	0.0015-0.0030
Rotor Assembly End Clearance (Assembled)	0.004 Max.
Outer Race-to-Housing Clearance	0.001-0.013
Oil Capacity (Quarts U.S.)	5.0

Note: Dimensions in inches unless specified otherwise.

- (1) Newly Installed--Refers to the condition of the "NEW" drive belt before the engine has made no more than one rotation and before the belt has had a chance to stretch or seal into the pulley grooves.
- (2) Time required for plunger to leak down 1/8" of travel with 50 lb. load leakdown fluid in lash adjuster
- (3) Distance in inches that front bearing is installed below front face of bearing tower.
- (4) 0.002 undersize = Add 0.001 to Standard Thickness
- (5) Pin bore and crank bearing bore must be parallel and in the same vertical plane, within the specified total difference when measured at the ends of an 8" bar -- 4" on each side of the rod centerline.
- (6) When replacing pistons, measure the cylinder bore as described in the General Engine Section 21-01 and install the specified service piston as matched to the piston bore diameter above.

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