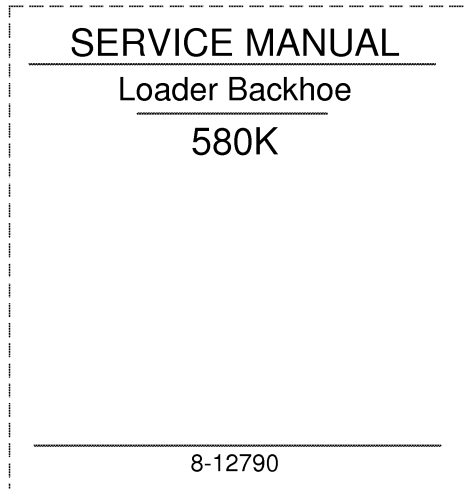


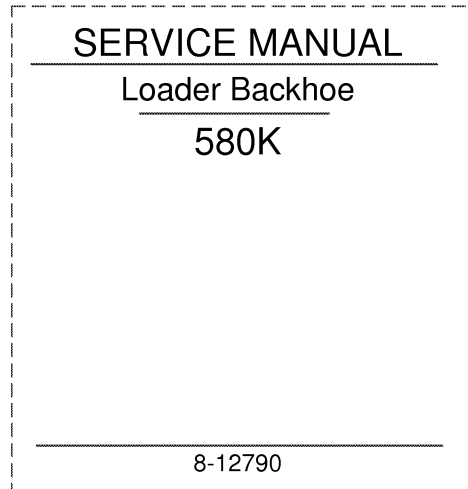
**Case 580k Phase 3 Service Manual**

Full download: <http://manualplace.com/download/case-580k-phase-3-service-manual/>



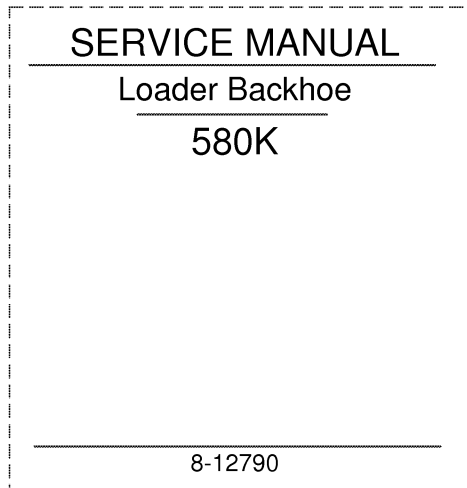
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



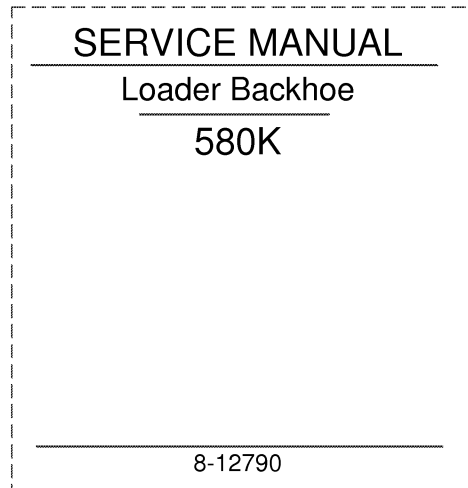
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4

# 580K Loader Backhoe

## Table of Contents

DIVISION/SECTION	SECTION NO.	FORM NO.
<b>1 GENERAL</b>		
Section Index - General .....		8-12260
Torque Specifications .....	1001	8-71600
Fluids and Lubricants .....	1002	8-12270
Detailed Engine Specifications .....	1024	8-24161
<b>2 ENGINES</b>		
Section Index - Engines .....		8-12280
Engine Removal and Installation, Radiator Removal and Installation .....	2001	8-12290
Stall Tests .....	2002	8-12300
Cylinder Head and Valve Train .....	2415	8-24171
Cylinder Block .....	2425	8-24181
Lubrication System .....	2445	8-24191
Cooling System .....	2455	8-24201
Turbocharger .....	2465	8-25550
Turbocharger Failure Analysis .....	2565	9-78235
<b>3 FUEL SYSTEM</b>		
Section Index - Fuel System .....		8-12310
Fuel System and Filters .....	3410	8-24211
Fuel Injection Pump and Drive Gear .....	3412	8-27080
Fuel Injectors .....	3413	8-24231
<b>4 ELECTRICAL</b>		
Section Index - Electrical .....		8-12320
Removal and Installation of Electrical Components .....	4001	8-12330
Electrical Specifications, Troubleshooting, and Schematics .....	4002	8-12340
Batteries .....	4003	8-12350
Starter and Starter Solenoid .....	4004	8-11370
65 Ampere Alternator .....	4005	8-11380
95 Ampere Alternator .....	4006	8-12380
Electrical Instrument Control Center .....	4007	8-12390
<b>5 STEERING</b>		
Section Index - Steering .....		8-12400
Removal and Installation of Steering Components .....	5001	8-12410
Specifications, Schematic, and Troubleshooting .....	5002	8-12421
Optional Tilt and Telescoping Steering Column .....	5003	8-12430
Steering Control Valve - Eaton .....	5004	8-12440
Steering Control Valve - Danfoss .....	5005	8-12450
Steering Cylinders .....	5006	8-12460
Front Axle - Two Wheel Drive .....	5007	8-12470
Front Axle - Four wheel Drive .....	5008	8-12480

DIVISION/SECTION	SECTION NO.	FORM NO.
<b>6 POWER TRAIN</b>		
Section Index - Power Train.....		8-12490
Removal and Installation of Power Train Components.....	6001	8-12500
Transmission Specifications and Schematic.....	6002	8-12511
Wheels and Tires.....	6003	8-12520
Rear Axles and Planetaries.....	6201	8-59671
Transfer Gearbox.....	6202	8-59681
Differential and Differential Lock.....	6203	8-59691
Forward/Reverse Valve.....	6204	8-59700
Torque Converter Charging Pump, Output Shaft, and Converter Housing.....	6205	8-59711
Transmission.....	6206	8-59721
<b>7 BRAKES</b>		
Section Index - Brakes.....		8-12530
Parking Brake.....	7000	8-59651
Disc Brakes.....	7001	8-59661
Removal and Installation of Brake Components.....	7002	8-12540
Master Cylinder.....	7003	8-12570
<b>8 HYDRAULICS</b>		
Section Index - Hydraulics.....		8-12580
Removal and Installation of Hydraulic Components.....	8001	8-12590
Hydraulic Schematics, Specifications, and Troubleshooting.....	8002	8-12601
Cleaning the Hydraulic System.....	8003	8-67390
Hydraulic Pump.....	8004	8-12610
Loader Control Valve.....	8005	8-12620
Cylinders.....	8006	8-12630
Backhoe Control Valve.....	8007	8-12640
Swing Sequence Valve.....	8008	8-12650
Three Point Hitch Control Valve.....	8009	8-67421
Double Selector Valve.....	8011	8-12670
<b>9 MOUNTED EQUIPMENT</b>		
Section Index - Mounted Equipment.....		8-12680
Pedals and Levers.....	9001	8-12690
Air Conditioning Troubleshooting and Pressure Checks.....	9002	8-12700
Air Conditioning System.....	9003	8-12710
Loader.....	9004	8-12720
ROPS Cab and ROPS Canopy.....	9005	8-12730
Backhoe - Integral.....	9006	8-12740
Backhoe - Demountable.....	9007	8-12750
Three Point Hitch.....	9008	8-12760
Seat and Seat Belts.....	9009	8-12770
Suspension Seat.....	9010	8-12780

# SECTION INDEX - GENERAL

Section Title	Section Number
Standard Torque Specifications.....	1001
Fluids and Lubricants .....	1002
Detailed Engine Specifications .....	1024



# 1001

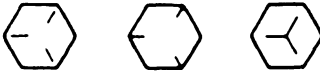
## STANDARD TORQUE SPECIFICATIONS


### TABLE OF CONTENTS

<b>Torque Specifications - Decimal Hardware</b> .....	1001-2	<b>Torque Specifications - Steel Hydraulic Fittings</b> .....	1001-4
<b>Torque Specifications - Metric Hardware</b> ...	1001-3	<b>Torque Specifications - O-ring Face Seal Fittings</b> .....	1001-5

## TORQUE SPECIFICATIONS - DECIMAL HARDWARE

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers, dry, or when lubricated with engine oil. Not applicable if special graphites, molydisulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts, and Studs		
		
Size	Pound-Feet	Newton metres
1/4 in	9-11	12-15
5/16 in	17-21	23-28
3/8 in	35-42	48-57
7/16 in	54-64	73-87
1/2 in	80-96	109-130
9/16 in	110-132	149-179
5/8 in	150-180	203-244
3/4 in	270-324	366-439
7/8 in	400-480	542-651
1.0 in	580-696	787-944
1-1/8 in	800-880	1085-1193
1-1/4 in	1120-1240	1519-1681
1-3/8 in	1460-1680	1980-2278
1-1/2 in	1940-2200	2631-2983


Grade 8 Bolts, Nuts, and Studs		
		
Size	Pound-Feet	Newton metres
1/4 in	12-15	16-20
5/16 in	24-29	33-39
3/8 in	45-54	61-73
7/16 in	70-84	95-114
1/2 in	110-132	149-179
9/16 in	160-192	217-260
5/8 in	220-264	298-358
3/4 in	380-456	515-618
7/8 in	600-720	814-976
1.0 in	900-1080	1220-1465
1-1/8 in	1280-1440	1736-1953
1-1/4 in	1820-2000	2468-2712
1-3/8 in	2380-2720	3227-3688
1-1/2 in	3160-3560	4285-4827


**NOTE:** Use thick nuts with Grade 8 bolts.

## TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following torques when special torques are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or molydisulfide grease or oil is used.

<b>Grade 8.8 Bolts, Nuts, and Studs</b>		
		
Size	Pound-Feet	Newton metres
<b>M4</b>	2-3	3-4
<b>M5</b>	5-6	6.5-8
<b>M6</b>	8-9	10.5-12
<b>M8</b>	19-23	26-31
<b>M10</b>	38-45	52-61
<b>M12</b>	66-79	90-107
<b>M14</b>	106-127	144-172
<b>M16</b>	160-200	217-271
<b>M20</b>	320-380	434-515
<b>M24</b>	500-600	675-815
<b>M30</b>	920-1100	1250-1500
<b>M36</b>	1600-1950	2175-2600

<b>Grade 10.9 Bolts, Nuts, and Studs</b>		
		
Size	Pound-Feet	Newton metres
<b>M4</b>	3-4	4-5
<b>M5</b>	7-8	9.5-11
<b>M6</b>	11-13	15-17.5
<b>M8</b>	27-32	37-43
<b>M10</b>	54-64	73-87
<b>M12</b>	93-112	125-15
<b>M14</b>	149-179	200-245
<b>M16</b>	230-280	310-380
<b>M20</b>	450-540	610-730
<b>M24</b>	780-940	1050-1275
<b>M30</b>	1470-1770	2000-2400
<b>M36</b>	2580-3090	3500-4200

### Grade 12.9 Bolts, Nuts, and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.



## TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

Tube OD Hose ID	Thread Size	Pound- Feet	Newton metres
<b>37 Degree Flare Fittings</b>			
<b>1/4 in</b> 6.4 mm	7/16-20	6-12	8-16
<b>5/16 in</b> 7.9 mm	1/2-20	8-16	11-21
<b>3/8 in</b> 9.5 mm	9/16-18	10-25	14-33
<b>1/2 in</b> 12.7 mm	3/4-16	15-42	20-56
<b>5/8 in</b> 15.9 mm	7/8-14	25-58	34-78
<b>3/4 in</b> 19.0 mm	1-1/16-12	40-80	54-108
<b>7/8 in</b> 22.2 mm	1-3/16-12	60-100	81-135
<b>1.0 in</b> 25.4 mm	1-5/16-12	75-117	102-158
<b>1-1/4 in</b> 31.8 mm	1-5/8-12	125-165	169-223
<b>1-1/2 in</b> 38.1 mm	1-7/8-12	210-250	285-338

Tube OD Hose ID	Thread Size	Pound- Feet	Newton metres
<b>Straight Threads with O-ring</b>			
<b>1/4 in</b> 6.4 mm	7/16-20	12-19	16-25
<b>5/16 in</b> 7.9 mm	1/2-20	16-25	22-23
<b>3/8 in</b> 9.5 mm	9/16-18	25-40	34-54
<b>1/2 in</b> 12.7 mm	3/4-16	42-67	57-90
<b>5/8 in</b> 15.9 mm	7/8-14	58-92	79-124
<b>3/4 in</b> 19.0 mm	1-1/16-12	80-128	108-174
<b>7/8 in</b> 22.2 mm	1-3/16-12	100-160	136-216
<b>1.0 in</b> 25.4 mm	1-5/16-12	117-187	159-253
<b>1-1/4 in</b> 31.8 mm	1-5/8-12	165-264	224-357
<b>1-1/2 in</b> 38.1 mm	1-7/8-12	250-400	339-542

<b>Split Flange Mounting Bolts</b>		
Size	Pound- Feet	Newton metres
5/16-18	15-20	20-27
3/8-16	20-25	26-33
7/16-14	35-45	47-61
1/2-13	55-65	74-88
5/8-11	140-150	190-203

## TORQUE SPECIFICATIONS - O-RING FACE SEAL FITTING

Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Feet	Newton Metres	Thread Size	Pound-Feet	Newton Metres
<b>O-ring Face Seal End</b>					<b>O-ring Boss End Fitting or Locknut</b>		
-4	<b>1/4 in</b> 6.4 mm	9/16-18	10-12	14-16	7/16-20	17-20	23-27
-6	<b>3/8 in</b> 9.5 mm	11/16-16	18-20	24-27	9/16-18	25-30	33-40
-8	<b>1/2 in</b> 12.7 mm	13/16-16	32-40	43-54	3/4-16	45-50	61-68
-10	<b>5/8 in</b> 15.9 mm	1-14	46-56	60-75	7/8-14	60-65	81-88
-12	<b>3/4 in</b> 19.0 mm	1-3/16-12	65-80	90-110	1-1/16-12	85-90	115-122
-14	<b>7/8 in</b> 22.2 mm	1-3/16-12	65-80	90-110	1-3/16-12	95-100	129-136
-16	<b>1.0 in</b> 25.4 mm	1-7/16-12	92-105	125-140	1-5/16-12	115-125	156-169
-20	<b>1-1/4 in</b> 31.8 mm	1-11/16-12	125-140	170-190	1-5/8-12	150-160	203-217
-24	<b>1-1/2 in</b> 38.1 mm	2-12	150-180	200-254	1-7/8-12	190-200	258-271



# Section 1002

## FLUIDS AND LUBRICANTS

## TABLE OF CONTENTS

CAPACITIES AND LUBRICANTS .....	2
ENGINE OIL RECOMMENDATIONS.....	3
DIESEL FUEL .....	4

### CAPACITIES AND LUBRICANTS

Engine Oil	
Capacity with Filter Change .....	11.6 U.S. quarts (11 litres)
Type of oil.....	See Engine Oil Recommendations on page 1002-3
Engine Cooling System	
Capacity without heater.....	17.2 U.S. quarts (16.3 litres)
Capacity with heater.....	17.9 U.S. quarts (16.9 litres)
Type of coolant.....	Ethylene glycol and water mixed for lowest ambient temperature At least 50/50 mix
Fuel Tank	
Capacity.....	25 U.S. gallons (94.6 litres)
Type of fuel.....	See Diesel fuel specifications on page 1002-4
Hydraulic System	
Hydraulic reservoir refill capacity .....	21.5 U.S. gallons (81.4 litres)
Type of oil.....	Case TCH Fluid
Transmission	
Capacity.....	47.6 U.S. quarts (45 litres)
Total System Capacity .....	57.1 U.S. quarts (54 litres)
Type of oil.....	Case Hy-Trans Plus (MS 1207)
Front Axle - Four Wheel Drive	
Capacity of center bowl .....	7.4 quarts (7 litres)
Capacity of planetary (each).....	1.1 U.S. quarts (1 litre)
Type of oil.....	CaseIH 135-H EP gear lube
Brake Reservoir	
Type of fluid.....	Case TCH Fluid

## ENGINE OIL RECOMMENDATIONS

CaseIH No. 1 Multi-Viscosity Engine Oil is recommended for use in your Case engine. The ambient temperature range for multi-viscosity oil is much larger than the ambient temperature range for single viscosity oil. See the Engine Oil Viscosity Chart below.

Single viscosity lubricants can be used in this engine if the ambient temperature range between oil changes remains within the limits for that oil.

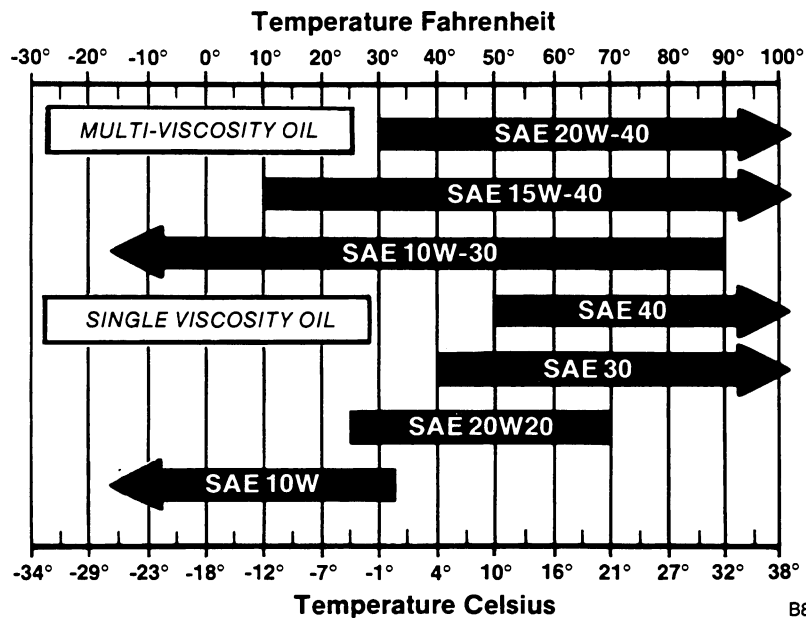
Only use lubricants with API classification of CC/CD, CD/SF, CD, or CE.



B88221J

**NOTE:** Do not put "Performance Additives" or other oil additive products in the engine crankcase. The oil change interval given in this manual is according to tests with Case lubricants.

### Engine Oil Viscosity



B850639AJ

## DIESEL FUEL

Use No. 2 diesel fuel in the engine of this machine. The use of other fuels can cause the loss of engine power and high fuel consumption.

In very cold temperatures, a mixture of No.1 and No. 2 diesel fuels is temporarily permitted. See the following Note.

**NOTE:** See your fuel dealer for winter fuel requirements in your area. If the temperature of the fuel is below the cloud point (wax appearance point), wax crystals in the fuel will cause the engine to lose power or not start.

The diesel fuel used in this machine must meet the specifications in the chart below or Specification D975-81 of the American Society for Testing and Materials.

### Fuel Storage

If you keep fuel in storage for a period of time, you can get foreign material or water in the fuel storage tank. Many engine problems are caused by water in the fuel.

Keep the fuel storage tank outside and keep the fuel as cool as possible. Remove water from the storage container at regular periods of time.

### Specifications for Acceptable No. 2 Diesel Fuel

API gravity, minimum .....	34
Flash point, minimum .....	140°F (60°C)
Cloud point (wax appearance point), maximum .....	-5°F (-20°C) See Note above
Pour point, maximum .....	-15°F (-26°C) See Note above
Distillation temperature, 90% point .....	540 to 640°F (282 to 338°C)
Viscosity, at 100°F (88°C)	
Centistokes .....	2.0 to 4.3
Saybolt Seconds Universal .....	32 to 40
Cetane number, minimum .....	43 (45 to 55 for winter or high altitudes)
Water and sediment, by volume, maximum .....	0.05 of 1%
Sulfur, by weight, maximum .....	0.5 of 1%
Copper strips corrosion, maximum .....	No. 2
Ash, by weight, maximum .....	0.01 of 1%

# Section

# 1024

## SPECIFICATION DETAILS

Written In *Clear  
And  
Simple  
English*

**IMPORTANT:** *This engine was made using the metric measurement system. All measurements and checks must be made with metric tools to make sure of an accurate reading when inspecting parts.*



## TABLE OF CONTENTS

RUN-IN INSTRUCTIONS .....	3
<b>ENGINE SPECIFICATION DETAILS</b>	
Cylinder Block .....	4
Service Cylinder Sleeve .....	4
Piston .....	4
Piston Pin .....	4
Piston Rings .....	5
Cylinder Head .....	5
Tappets .....	5
Connecting Rod .....	5
Crankshaft .....	6
Camshaft .....	7
Valve Push Rod Lifters .....	7
Gear Train .....	7
Rocker Arm Assembly .....	7
Turbocharger .....	7
Intake Valve .....	8
Exhaust Valve .....	8
Valve Springs .....	8
SPECIAL TORQUES .....	9-11

## RUN-IN INSTRUCTIONS

### Engine Lubrication

Fill the engine crankcase with CC or CD service classification oil that has the correct viscosity rating for the ambient air temperature. Install new oil filters, after the engine has been rebuilt.

### Run-In Procedure For Rebuilt Engine

- Step 1 Disconnect the wire to the electric shut-off on the injection pump so that the engine will not start. Crank the engine for 30 seconds until there is oil pressure, then reconnect the wire.
- Step 2 Remove the air from the cooling system at the temperature sending unit.
- Step 3 Run the engine at 1000 RPM minimum load for 5 minutes and check for oil leaks.
- Step 4 During the Run-In, continue to check the oil pressure, coolant level, and coolant temperature.

### Run-In Procedure For Rebuilt Engines (With A Dynamometer)

The following procedure must be followed when using a PTO dynamometer to Run-In the engine. The dynamometer will control the engine load at each speed and will remove stress on new parts during Run-In.

During the Run-In, continue to check the oil pressure, coolant level and coolant temperature.

STEP	TIME	ENGINE SPEED	DYNAMOMETER SCALE LOAD
1	5 Minutes	1000 RPM	50
2	5 Minutes	1100 RPM	1/2
3	5 Minutes	2200 RPM	Full

### Run-In Procedure for Rebuilt Engines (Without A Dynamometer)

STEP	TIME	ENGINE SPEED	LOAD
1	5 Minutes	1000 RPM	No Load
2	5 Minutes	1100 RPM	Light Load
3	5 Minutes	2200 RPM	Light Load

### Run-In Procedure (Agriculture Tractors)

For the first 8 hours of field operation stay one gear lower than normal. For the next 12 hours DO NOT "lug" the engine. Prevent "lugging" by moving the lever to a lower gear. The engine must not be "lugged" below the rated engine RPM during early hours of life.

### Run-In Procedure (Construction Equipment)

For the first 8 hours, operate the engine at full throttle maintaining a normal load. DO NOT "baby" the engine, but avoid converter or hydraulic stall. The engine must not be "lugged" below the Rated Engine RPM (Do not stall the engine more than 10 seconds).

## ENGINE SPECIFICATION DETAILS

### Cylinder Block

	Metric Value
Type .....	Non-Sleeved
Material .....	Cast Iron
ID of Cylinder .....	102.00 to 102.04 mm
Maximum Service Limit .....	102.116 mm
Cylinder Out of Round (Maximum) .....	0.038 mm
Cylinder Taper (Maximum) .....	0.076 mm
0.5 mm Oversize Piston	
Machine Cylinder Bore to .....	102.50 to 102.54 mm
1.00 mm Oversize Piston	
Machine Cylinder Bore to .....	103.00 to 103.04 mm

### Service Cylinder Sleeve

Type .....	Dry, Can Be Replaced
Material .....	Cast Iron
Machine Cylinder Block Bore to .....	104.500 to 104.515 mm
Installation .....	Press Fit
Machine Sleeve Bore to:	
Standard Size Piston .....	102.00 to 102.04 mm
0.5 mm Oversize Piston .....	102.50 to 102.54 mm
1.0 mm Oversize Piston .....	103.00 to 103.04 mm

### Piston

Type .....	Cam Ground
Material .....	Aluminum alloy
OD at 12 mm From the Bottom, 90 Degrees Piston Pin	
Standard Size Piston .....	101.873 to 101.887 mm
Minimum Service Limit .....	101.823 mm
0.5 mm Oversize Piston .....	102.373 to 102.387 mm
Minimum Service Limit .....	101.323 mm
1.0 mm Oversize Piston .....	102.873 to 102.887 mm
Minimum Service Limit .....	102.823 mm
ID of Piston Pin Bore .....	40.006 to 40.012 mm
Maximum Service Limit .....	40.025 mm
Width of 1st Ring Groove (Top) .....	2.465 to 2.485 mm
Width of 2nd Ring Groove (Intermediate) .....	2.425 to 2.445 mm
Width of 3rd Ring Groove (Oil Ring) .....	4.040 to 4.060 mm
Protrusion Above Cylinder Block (Maximum) .....	0.660 mm

### Piston Pin

Type .....	Full Float
OD of Pin .....	39.997 to 40.003 mm
Minimum Service Limit .....	39.990 mm

## Piston Rings

No. 1 Compression 4T-390 Engine	Key Stone Type (Barrel Face)
End Gap in 102.02 ID	0.4 to 0.70 mm
No. 1 Compression 4-390 Engine	Rectangular Type (Barrel Face)
End Gap in 102.02 ID	0.25 to 0.55 mm
Maximum Service Limit	0.806 mm
Side Clearance	0.075 to 0.120 mm
Maximum Service Limit	0.15 mm
No. 2 Compression	Rectangular Type (Tapper Face)
End Gap in 102.02 ID	0.25 to 0.55 mm
Maximum Service Limit	0.806 mm
Side Clearance	0.075 to 0.120 mm
Maximum Service Limit	0.15 mm
No. 3 Oil Control Rings	Two Piece
End Gap in 102.02 ID	0.25 to 0.55 mm
Maximum Service Limit	0.806 mm
Side Clearance	0.130 mm

## Cylinder Head

Warpage (Maximum)	0.20 mm
-------------------	---------

## Lifters

Material	Hardened Iron
OD of Lifter	15.961 to 15.977 mm
Minimum Service Limit	15.960 mm
Bore Diameter in Block	16.000 to 16.030 mm
Maximum Service Limit	16.055 mm

## Connecting Rod

Bushing	Steel Backed Leaded Bronze
Bushing ID Installed (Ream to Size)	40.053 to 40.067 mm
Maximum Service Limit	40.092 mm
Bearing Liners	Replaceable
Journal ID Without Bearing Liners	72.987 to 73.013 mm
Bearing Oil Clearance	0.038 to 0.116 mm
Maximum Service Limit	0.129 mm
Side Clearance	0.100 to 0.300 mm
Maximum Service Limit	0.330 mm
Connecting Rod Bend (Maximum)	
Without Bushing	0.200 mm
With Bushing	0.150 mm
Connecting Rod Twist (Maximum)	
Without Bushing	0.500 mm
With Bushing	0.300 mm