workshop manual for T6.3544, 6.3544 and 6.3724 diesel engines

©

Perkins Engines Limited

Peterborough England

1989

Publication No. TPD10891146E

This publication is written for world wide use. In territories where legal requirements govern smoke emission, noise, safety factors, etc., then all instructions, data and dimensions given must be applied in such a way that, after servicing (preventive maintenance) or repairing an engine, it does not contravene the local regulations in use.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

CONTENTS

	Section
ENGINE PHOTOGRAPHS	A
TECHNICAL DATA	B
OPERATING AND MAINTENANCE	C*
FAULT FINDING	D
CYLINDER HEAD	E
PISTONS AND CONNECTING RODS	F
CYLINDER BLOCK AND LINERS	G
CRANKSHAFT AND MAIN BEARINGS	H
TIMING CASE AND DRIVE	J
TIMING	K
LUBRICATING SYSTEM	L
COOLING SYSTEM	M
AIR CLEANERS AND FUEL SYSTEM	N
FLYWHEEL AND FLYWHEEL HOUSING	P
TURBOCHARGER	Q
ALTERNATOR AND STARTER MOTOR	R
COMPRESSOR	S
EXHAUSTER	T
APPROVED SERVICE TOOLS	U
INDEX	
MARINE SUPPLEMENT	

* Operating and maintenance information can be found in section 3 of the multi-lingual 6.3544 SERIES User's Handbooks.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

INDEX

Alternator AC5, 17ACR, 18ACR, 25ACR and A133/65
- Precautions R2
- Maintenance R2
- Fault Finding AC5 R2
- Testing 17ACR, 18ACR, 25ACR and A133/65 R3
- Data B12

Altitude, De-rating B2
Amendment Status Page 2
Atomisers
- Data B12
- General N7
- Pressure Setting B12

Belt, Fan, Adjustment M2
Bearing, Main, Data and Dimensions B6
Bearing, Main, To Fit H4
Block, Cylinder G2
Block, Cylinder, Data and Dimensions B3
Bush, Auxiliary Drive Shaft Front, Data and Dimensions B8
Bush, Auxiliary Drive Shaft Rear, Data and Dimensions B9
Bush, Connecting Rod, Small End, Data and Dimensions B5
Bush, Connecting Rod, to Renew F3

Case, Timing, To Remove J2
Case, Timing, To Refit J3
Camshaft, Data and Dimensions B6
Camshaft, To Remove J4
Camshaft, To Replace J4
Compressor
- Preventive Maintenance S2
- To Remove S2
- To Replace S2

Compressor SC6
- Dismantling S2
- Cleaning S2
- Inspection of Parts S3
- Re-assembly S3

Compressor, Twin 9
- Data and Dimensions S5
- To Dismantle S4
- To Re-assemble S4
- To Recondition S4

Cooler, Air Charge (integral air/water) M7
Cooler, Air Charge, Description N4
Cooler, Oil
- To Remove L5
- To Dismantle L5, 6 and 7
- To Re-assemble L5, 6 and 7
- To Test L7
- To Refit L7

Cooler Adaptor
- Oil Cooler to Cylinder Block L7

Cooling System, Data B10
Cooling System, Description M2
Cooling System, To Drain M3

Crankshaft
- Data and Dimensions B6
- Description H2
- Description H2
- To Regrind H3
- To Fit H4

Data, Engine B1

Exhaust Smoky, Fault Finding D2

Fault Finding Chart D2
Filter
- Air, Dry Type N2
- Air, General N2
- Air, Oil Bath Type N4
- Fuel, Data B10
- Fuel, To Renew Element N4
- Lubicating Oil, Data and Dimensions B10
- Lubricating Oil, To Renew L8

Foreword Page 5
Flywheel, Alignment P2
Flywheel, To Remove P2
Flywheel, To Refit P2
Flywheel, Runout P2
Fuel System Bleeding N8

Gasket, Cylinder Head E2
Gear
- Auxiliary Drive Shaft, Data and Dimensions B8
- Auxiliary Drive Shaft, To Remove J2
- Auxiliary Drive Shaft, To Refit J3
- Camshaft, Data and Dimensions B8
- Camshaft, To Remove J2
- Camshaft, To Refit J3
- Crankshaft, Data and Dimensions B8
- Flywheel Ring P2
- Hydraulically Loaded Wormwheel, Data and Dimensions B9
- Idler, Data and Dimensions B8
- Idler, To Remove J4
- Idler, To Refit J4
- Timing, Backlash B8
- Timing, Backlash, Checking J6

Guide, Valve, Data and Dimensions B7
Guides, Valve E6

Head, Cylinder
- Data and Dimensions B7
- To Remove E2
- To Overhaul E6
- To Fit E3

Housing, Flwyheel, Alignment Limits P3
Housing, Flywheel, To Remove P2
Housing, Flywheel, To Refit P2
Hub, Idler Gear, Data and Dimensions B8
Hub, Idler Gear, To Remove J4
Hub, Idler Gear, to Refit J4

Inserts, Valve Seat E7

Jets, Piston Cooling
- Description J6
- Nozzle Positioning M6
- To Refit M6
- To Remove M6

Liner, Cylinder G2
- Data and Dimensions B3
- To Renew G2

Lubricating Oil
- Circulation L3
- Operating Pressure B1
- High Pressure, Fault Finding D2
- Low Pressure, Fault Finding D2

Misfire, Engine, Fault Finding D2

Number, Engine Location Page 5

Overheating, Engine, Fault Finding D2

Pin, Gudgeon, Data and Dimensions B5
Piston and Rod
- To Assemble F3
- Data and Dimensions B3-B4
- To Dismantle F2
- Inspection F3

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SAFETY PRECAUTIONS

THESE SAFETY PRECAUTIONS ARE IMPORTANT. You must refer also to the local regulations in the country of use. Some items only apply to specific applications.

- Only use these engines in the type of application for which they have been designed.
- Do not change the specification of the engine.
- Do not smoke when you put fuel in the tank.
- Clean away fuel which has been spilt. Material which has been contaminated by fuel must be moved to a safe place.
- Do not put fuel in the tank while the engine runs (unless it is absolutely necessary).
- Do not clean, add lubricating oil, or adjust the engine while it runs (unless you have had the correct training; even then extreme caution must be used to prevent injury).
- Do not make adjustments that you do not understand.
- Ensure that the engine does not run in a location where it can cause a concentration of toxic emissions.
- Other persons must be kept at a safe distance while the engine, or equipment, is in operation.
- Do not permit loose clothing or long hair near moving parts.
- Keep away from moving parts during engine operation. Attention: Some moving parts cannot be seen clearly while the engine runs.
- Do not operate the engine if a safety guard has been removed.
- Do not remove the filler cap of the cooling system while the engine is hot and while the coolant is under pressure, because dangerous hot coolant can be discharged.
- Do not use salt water or any other coolant which can cause corrosion in the closed coolant circuit.
- Do not allow sparks or fire near the batteries (especially when the batteries are on charge) because the gases from the electrolyte are highly flammable. The battery fluid is dangerous to the skin and especially to the eyes.
- Disconnect the battery terminals before a repair is made to the electrical system.
- Only one person must control the engine.
- Ensure that the engine is operated only from the control panel or from the operator's position.
- If your skin comes into contact with high-pressure fuel, obtain medical assistance immediately.
- Diesel fuel and lubricating oil (especially used lubricating oil) can damage the skin of certain persons. Protect your hands with gloves or a special solution to protect the skin.
- Do not wear clothing which is contaminated by lubricating oil. Do not put material which is contaminated with oil into the pockets.
- Discard used lubricating oil in a safe place to prevent contamination.
- Do not move mobile equipment if the brakes are not in good condition.
- Ensure that the control lever of the transmission drive is in the "out-of-drive" position before the engine is started.
- Use extreme care if emergency repairs must be made at sea or in adverse conditions.
- The combustible material of some components of the engine (for example certain seals) can become extremely dangerous if it is burned. Never allow this burnt material to come into contact with the skin or with the eyes.
- Fit only genuine Perkins parts.

ASBESTOS JOINTS

Some joints and gaskets contain compressed asbestos fibres in a rubber compound or in a metal outer cover. The "white" asbestos (Chrysotile) which is used is a safer type of asbestos and the risk of damage to health is extremely small.

The risk of asbestos from joints occurs at their edges or if a joint is damaged when a component is removed or if a joint is removed by abrasion.

To ensure that the risk is kept to a minimum, the procedures given below must be applied when an engine which has asbestos joints is dismantled or assembled.

- Work in an area with good ventilation.
- Do not smoke.
- Use a hand scraper to remove the joints — do not use a rotary wire brush.
- Ensure that the joint to be removed is wet with oil or water to contain loose particles.
- Spray all loose asbestos debris with water and put it in a closed container which can be sealed for safe disposal.

PREVIEW - YOUFIXTHIS.COM

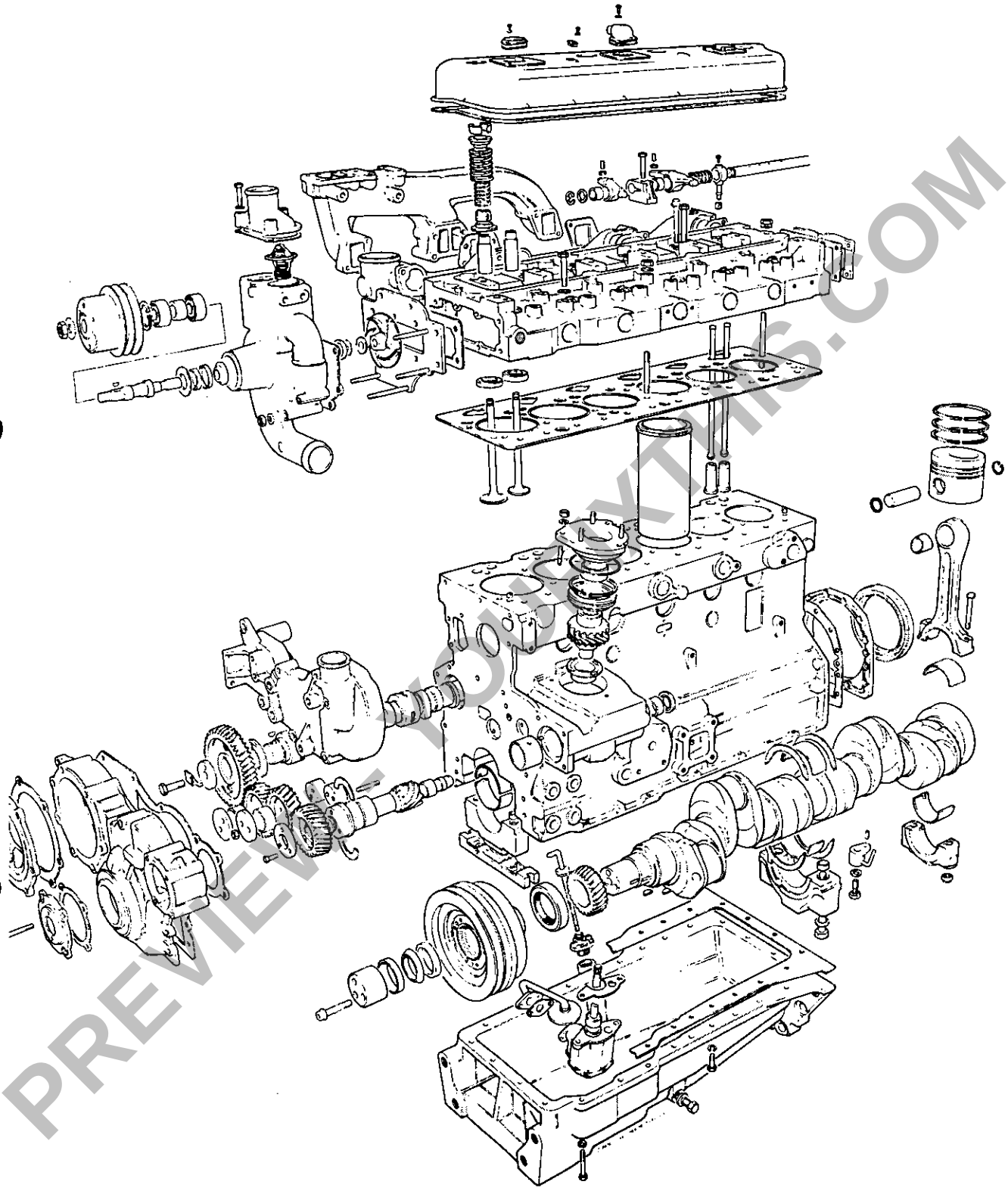
Download full manual at youfixthis.com

Amendment status

Number	Description	Date
1-5	These amendments are included in the previous edition number 601SER01821146	1982-1986
6	This amendment introduces edition number TPD10891146E and amends and adds information. Certain general information which is included in the multi-lingual 6.3544 SERIES User's Handbooks has been removed from the workshop manual.	October 1989
7	Additional information has been added to the Marine Supplement, section 'R' of the manual.	June 1992

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SECTION B
Technical Data

Bore (T6.3544 and 6.3544 engines)	3.875 in (98,4 mm)*
Bore (6.3724 engines)	3.975 in (101 mm)*
Stroke	5 in (127 mm)
No. of cylinders	6
Cubic capacity (T6.3544 and 6.3544 engines)	354 in³ (5,8 litres)
Cubic capacity (6.3724 engines)	372 in³ (6,1 litres)
Compression ratio:	
T6.3544 engines	15.5: 1
North America vehicle T6.3544	16: 1
6.3544 engines	16: 1
6.3724 engines	16: 1
Firing order	1, 5, 3, 6, 2, 4
Combustion system	Direct injection
Cycle	4 stroke
Valve clearance (cold)	
Inlet	0.008 in (0,20 mm)
Exhaust	0.018 in (0,45 mm)
Lubricating oil pressure	30 lbf/in² (2,1 kgf/cm²) or 207 kN/m² minimum at maximum working speed and normal operating temperature.
Turbocharger boost pressures (measured at induction manifold) T6.3544 engines only	11–13.5 lbf/in² (0,80–0,95 kgf/cm²) or 76–93 kN/m² These pressures will vary according to application, engine loads and speeds. They are for guidance purposes only.

*Nominal— for actual bore size see Page B.3.

Details of ratings

T6.3544CC Vehicle	119 kW (159 bhp) at 2,600 rev/min
Maximum torque	502 Nm (370 lbf ft) at 1,600 rev/min
T6.3544 Vehicle	115 kW (155 bhp) at 2,600 rev/min
Maximum torque	498 Nm (367 lbf ft) at 1,700 rev/min
T6.3544 North America vehicle	104 kW (140 bhp) at 2,600 rev/min
Maximum torque	470,5 Nm (347 lbf ft) at 1,700 rev/min
T6.3544 Agricultural and Industrial	107 kW (143 bhp) at 2,500 rev/min
Maximum torque	469 Nm (346 lbf ft) at 1,600 rev/min
6.3544 Premium Vehicle	95,5 kW (128 bhp) at 2,800 rev/min
Maximum torque	380 Nm (280 lbf ft) at 1,500 rev/min
6.3544 Agricultural and Industrial	91 kW (122 bhp) at 2,600 rev/min
Maximum torque	384 Nm (283 lbf ft) at 1,400 rev/min
6.3724 Agricultural engines	90 kW (121 bhp) at 2,500 rev/min
Maximum torque	396 Nm (292 lbf ft) at 1,450 rev/min

The above ratings are maximum and can vary according to application.

Engine weights

Typical dry weight	940–960 lb (425–435 kg)
Typical installed weight	1100–1170 lb (500–530 kg)

Recommended torque tensions

The following figures will apply with the components lightly lubricated with clean engine oil

	Screw size UNF	lbf ft	kgf m	Nm
Cylinder head nuts and setscrews (with formed washer face) — cold	½	115	15,9	156
Cylinder head nuts and setscrews (with formed washer face) — hot	½	105	14,5	142
Cylinder head nuts and setscrews (with separate washers)	½	95	13,1	129
Cylinder head setscrews	$\frac{5}{16}$	28	3,9	38
Connecting Rod Nuts (Cadmium Plated)	½	75	10,4	102
Connecting Rod Nuts (Phosphated)	½	95	13,1	129
Main bearing setscrews	⅝	200	27,7	270
Idler gear hub nuts	⅜	36	5,0	49
Fuel lift pump setscrews	$\frac{5}{16}$	20	2,8	27
Sump securing setscrews	$\frac{5}{16}$	15	2,1	20

(continued)—

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Fault Finding Chart

FAULT	POSSIBLE CAUSE
Low cranking speed	1, 2, 3, 4.
Will not start	5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20. 22. 31, 32, 33.
Difficult starting	5, 7, 8, 9, 10, 11, 12, 13, 14, 15. 16, 18, 19, 20. 21, 22, 24. 29, 31. 32. 33.
Lack of power	8, 9, 10, 11, 12, 13, 14, 18, 19, 20, 21, 22, 23, 24, 25. 26, 27, 31, 32, 33, 60, 62, 63.
Misfiring	8, 9, 10, 12, 13, 14, 16, 18, 19, 20, 25, 26, 28, 29, 30, 32.
Excessive fuel consumption	11, 13, 14, 16, 18, 19, 20, 22, 23, 24, 25, 27. 28, 29, 31, 32, 33. 63.
Black exhaust	11, 13, 14, 16, 18, 19, 20, 22, 24, 25, 27, 28, 29, 31, 32, 33, 60.
Blue/white exhaust	4, 16, 18, 19, 20, 25, 27, 31, 33, 34, 35, 45, 56. 61.
Low oil pressure	4, 36, 37, 38, 39, 40, 42, 43, 44, 58.
Knocking	9, 14, 16. 18, 19, 22, 26, 28. 29, 31, 33, 35, 36, 45, 46, 59.
Erratic running	7. 8, 9, 10, 11, 12, 13, 14, 16, 20, 21, 23, 26, 28, 29, 30, 33, 35, 45, 59.
Vibration	13, 14, 20, 23, 25, 26, 29, 30, 33, 45, 47, 48, 49.
High oil pressure	4, 38, 41.
Overheating	11, 13, 14, 16, 18, 19, 24, 25, 45, 47, 50, 51, 52, 53, 54, 57.
Excessive crankcase pressure	25, 31, 33, 34, 45, 55, 64.
Poor compression	11, 19, 25, 28, 29, 31, 32, 33, 34, 46, 59.
Starts and stops	10, 11, 12.

Key to Fault Finding Chart

1. Battery capacity low.
2. Bad electrical connections.
3. Faulty starter motor.
4. Incorrect grade of lubricating oil.
5. Low cranking speed.
6. Fuet tank empty.
7. Faulty stop control operation.
8. Blocked fuel feed pipe.
9. Faulty fuel lift pump.
10. Choked fuel filter.
11. Restriction in induction system.
12. Air in fuel system.
13. Faulty fuel injection pump.
14. Faulty atomisers or incorrect type.
15. Incorrect use of cold start equipment.
16. Faulty cold starting equipment.
17. Broken fuel injection pump drive.
18. Incorrect fuel pump timing.
19. Incorrect valve timing.
20. Poor compression.
21. Blocked fuel tank vent.
22. Incorrect type or grade of fuel.
23. Sticking throttle or restricted movement.
24. Exhaust pipe restriction.
25. Cylinder head gasket leaking.
26. Overheating.
27. Cold running.
26. Incorrect tappet adjustment.
29. Sticking valves.
30. Incorrect high pressure pipes.
31. Worn cylinder bores.
32. Pitted valves and seats.
33. Broken, worn or sticking piston ring(s).
34. Worn valve stems and guides.
35. Overfull air cleaner or use of incorrect grade of oil.
36. Worn or damaged bearings.
37. Insufficient oil in sump.
38. Inaccurate gauge.
39. Oil pump worn.
40. Pressure relief valve sticking open.
41. Pressure relief valve sticking closed.
42. Broken relief valve spring.
43. Faulty suction pipe.
44. Choked oil filter.
45. Piston seizure/pick up.
46. Incorrect piston height.
47. Damaged fan.
48. Faulty engine mounting (housing).
49. Incorrectly aligned flywheel housing or flywheel.
50. Faulty thermostat.
51. Restriction in water jacket.
52. Loose water pump drive belts.
53. Choked radiator.
54. Faulty water pump.
55. Choked breather pipe/Defective breather vent valve (where fitted).
56. Damaged valve stem oil deflectors (if fitted).
57. Coolant level too low.
58. Blocked sump strainer.
59. Broken valve spring.
60. Damaged or dirty turbocharger impeller.
61. Leaking turbocharger oil seals.
62. Leaking boost control pipe.
63. Leaking induction system.
64. Fault in exhauster.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

MANUFACTURING DATA AND DIMENSIONS

All threads used, except perhaps on proprietary equipment are Unified Series and American Pipe Series.

The following data of clearances and tolerances are given as a guide for personnel engaged upon major overhauls and the figures are those used in the factory for production purposes.

Cylinder Block

Height between Top and Bottom Faces	17.367/17.375 in (441,12/441,32 mm)
Parent Bore Diameter for Cylinder Liner (T6.3544/6.3544)	4.0625/4.0635 in (103,19/103,21 mm)
Parent Bore Diameter for Cylinder Liner (6.3724)	4.1025/4.1035 in (104,20/104,23 mm)
Recess Depth for Cylinder Liner Flange	0.150/0.154 in (3,81/3,91 mm)
Recess Diameter for Cylinder Liner Flange (T6.3544/6.3544)	4.205/4.210 in (106,81/106,94 mm)
Recess Diameter for Cylinder Liner Flange (6.3724)	4.245/4.250 in (107,82/107,95 mm)
Main Bearing Parent Bore	3.166/3.167 in (80,42/80,44 mm)
Camshaft Bore Diameter, No. 1	2.000/2.001 in (50,80/50,83 mm)
Camshaft Bore Diameter, No. 2	1.990/1.992 in (50,55/50,60 mm)
Camshaft Bore Diameter, No. 3	1.980/1.982 in (50,29/50,34 mm)
Camshaft Bore Diameter, No. 4	1.970/1.972 in (50,04/50,09 mm)

Cylinder Liners (Cast Iron—Flanged)—T6.3544/6.3544

Type	Dry—Interference Fit—Production Dry—Transition Fit—Service
Outside Diameter of Production Liner	4.0645/4.0655 in (103,24/103,26 mm)
Interference Fit of Production Liner	0.001/0.003 in (0,03/0,08 mm)
Inside Diameter of Production Liner after Finish Honing	3.877/3.878 in (98,48/98,50 mm)
Transition Fit of Service Liner	−0.001/+0.001 in (−0.025/+0.025 mm)
Inside Diameter of Service Liner after fitting	3.877/3.8795 in (98,48/98,54 mm)
Flange Thickness	0.150/0.152 in (3.81/3.86 mm)
Height of Liner above Cylinder Block Top Face	0.026/0.037 in (0,66/0,94 mm)
Position of Liner Flange Relative to Top Face of Cylinder Block	+0.002/−0.004 in (+0,05/−0,10 mm)

Cylinder Liners (Cast Iron—Flanged)—6.3724

Type	Dry—Interference Fit—Production
Outside Diameter	4.1045/4.1055 in (104,25/104,28 mm)
Interference Fit of Liner	0.001/0.003 in (0,03/0,08 mm)
Inside Diameter of Liner after Finish Honing	3.9785/3.9795 in (101,05/101,08 mm)
Flange Thickness	0.150/0.152 in (3,81/3,86 mm)
Height of Liner above Cylinder Block Top Face	0.028/0.035 in (0,71/0,89 mm)
Position of Liner Flange relative to Cylinder Block Top Face	+0.002/−0.004 in (+0,05/−0,10 mm)

Pistons (T6.3544)

Type	Toroidal Cavity in Crown
Piston Height in Relation to Cylinder Block Top Face	0.000/0.007 in (0,00/0,18 mm) above
Bore Diameter for Gudgeon Pin	1.5000/1.5002 in (38,100/38,105 mm)
Compression Ring Groove Width, No. 1	Tapered
Compression Ring Groove Width, No. 2	0.0955/0.0963 in (2,43/2,45 mm)
Scraper Ring Groove Width, No. 3	0.1885/0.1893 in (4,79/4,81 mm)

Pistons (T6.3544 North America vehicles)

Type	Re-entrant Combustion Chamber in Crown
Piston Height in Relation to Cylinder Block Top Face	0.000/0.007 in (0,00/0,18 mm) above
Bore Diameter for Gudgeon Pin	1.5000/1.5002 in (38,100/38,105 mm)
Compression Ring Groove Width, No. 1	Tapered
Compression Ring Groove Width, No. 2	0.0959/0.0967 in (2,44/2,46 mm)
Scraper Ring Groove Width, No. 3	0.1900/0.1908 in (4,83/4,85 mm)

Pistons (6.3544)—3 Ring

Type	Toroidal Cavity in Crown
Piston Height in Relation to Cylinder Block Top Face	0.000/0.007 in (0,00/0,18 mm) above
Bore Diameter for Gudgeon Pin	1.3751/1.3754 in (34,928/34,935 mm)
Compression Ring Groove Width, No. 1	0.0959/0.0978 in (2,44/2,48 mm)
Compression Ring Groove Width, No. 2	0.0959/0.0970 in (2,44/2,46 mm)
Scraper Ring Groove Width, No. 3	0.1885/0.1893 in (4,79/4,81 mm)

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

SERVICE WEAR LIMITS

The following "wear limits" indicate the condition when it is recommended that the respective items should be serviced or replaced.

Cylinder Head Bow Transverse	0.005 in (0,13 mm)
Longitudinal	0.010 in (0,25 mm)
Maximum Bore Wear (when new liners are necessary)	0.008 in (0,20 mm)
Crankshaft, Main and Big End Journal, Ovality and Wear	0.0015 in (0,04 mm)
Maximum Crankshaft End Float	0.020 in (0,51 mm)
Valve Stem to Guide Bore Clearance, Inlet	0.005 in (0,13 mm)
Exhaust	0.006 in (0,15 mm)
Valve Head Depth below Cylinder Head Face	0.060 in (1,52 mm)
Rocker Clearance on Rocker Shaft	0.005 in (0,13 mm)
Camshaft Journals, Ovality and Wear	0.002 in (0,05 mm)
Camshaft End Float	0.021 in (0,53 mm)
Idler Gear End Float	0.015 in (0,38 mm)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

T6.3544 Engines only

The turbocharger is fitted on the exhaust manifold outlet, see Fig. A.4. It is lubricated by oil taken from the engine lubricating system. Oil pressure should never drop below 30lbf/in² (2,11kgf/cm²) or 207kN/m² at normal running speed. Check this pressure regularly.

The maximum boost pressure should be 11 – 13.5lbf/in² (0,80 – 0,95kgf/cm²) or 76 – 93kN/m² when the engine is running at maximum speed and full load.

With some engines where it is not possible to fully load the engine, the boost pressure will be somewhat lower.

No attention need be paid to the speed of the turbocharger since this varies automatically with the speed and load of the engine.

Maintenance

Every 20,000 miles (30,000km) or 1,000 hours, clean the oil drain pipe from turbocharger to sump, also turbocharger compressor wheel and cover.

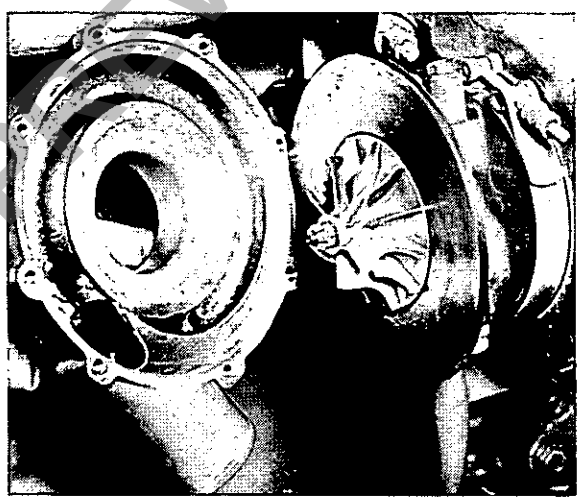
The compressor wheel and cover may be cleaned without removing the turbocharger from the engine (Fig. Q.1).

Remove the air inlet duct and compressor housing and check for dirt or dust build up.

Remove all foreign matter – determine and correct cause of build up.

Use soft brush on compressor wheel as uneven deposits can affect rotor balance and cause bearing failure.

With the compressor housing removed, push the compressor housing wheel towards the turbine wheel and turn rotating assembly by hand: check for binding and rubbing. Listen carefully for unusual noises. If binding or rubbing is evident, remove the turbocharger for dismantling and inspection.



Q.1

Fault Diagnosis

If the performance of the turbocharger is suspect, check the installation for the following faults:

Excessive air inlet depression.

Low or high air delivery pressure.

Low oil pressure and/or low oil flow.

Restricted exhaust from turbine.

Fuel pump or injection faults.

Check and rectify in accordance with the following paragraphs:

Excessive air inlet depression: The air depression at the entry to the compressor, that is in the ducting after the air filter and immediately before the compressor cover, should not exceed a 20in (500mm) head of water.

If the depression is excessive, the cause will be due to a restriction of inlet air by a dirty air filter.

Service the air filter.

Low or high air delivery pressure: The pressure will vary according to the engine rating, speed and load.

If the pressure is low, the probable cause is a dirty or damaged compressor, incorrect fuelling of the engine fuel pump, or leaking manifold joints.

Check that the injection pump fuelling has not been disturbed and if satisfactory, remove the turbocharger from the engine for inspection.

A higher reading may also indicate incorrect injection pump fuelling or damage to the turbine.

Action as for low pressure.

Low oil pressure and/or oil flow: The oil delivery pressure should not be less than 30lbf/in² (2,1kgf/cm²) or 207kN/m² under normal conditions of load.

If oil pressure is low, refer to Section L. Clean bores of the feed and return pipes and check the connections for obstruction.

Restricted exhaust from the turbine: A restriction of the exhaust from the turbine will affect engine performance. If the back pressure is more than 20in (500mm) head of water, check the exhaust system for obstruction and rectify as necessary.

Reconditioning

When a turbocharger is removed from an engine, it is imperative that all terminations of oil connections are sealed immediately, to prevent the entry of dirt.

During all stages of turbocharger dismantling, examination and rebuilding, care must be taken to ensure that no damage is caused to components.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

To Remove the Cylinder Head

The T6.3544, 6.3544 or 6.3724 cylinder head is not interchangeable with any other 6.354 or T6.354 engine type cylinder heads.

Drain the cooling system.

Disconnect battery terminals.

Remove air cleaner and trunking.

Remove exhaust pipe from exhaust manifold (6.3544 engines only).

Disconnect and remove all connections to the turbocharger and remove the turbocharger, see Fig. E.1. (T6.3544 engines only).

Remove electrical connections to the cylinder head and induction manifold. Remove fuel pipe to thermostart in the manifold.

Remove the water outlet connection.

Remove the induction and exhaust manifolds.

The fuel pipe from lift pump to fuel filters should be removed, releasing the clip from the back of the cylinder head. The fuel filters may also be removed.

All high pressure pipes between fuel injection pump and the atomisers should be removed together with the atomisers leak-off pipe assembly.

Remove atomisers, see Fig. E.2.

Disconnect the breather pipe from the rocker cover and cylinder block. Remove the breather pipe.

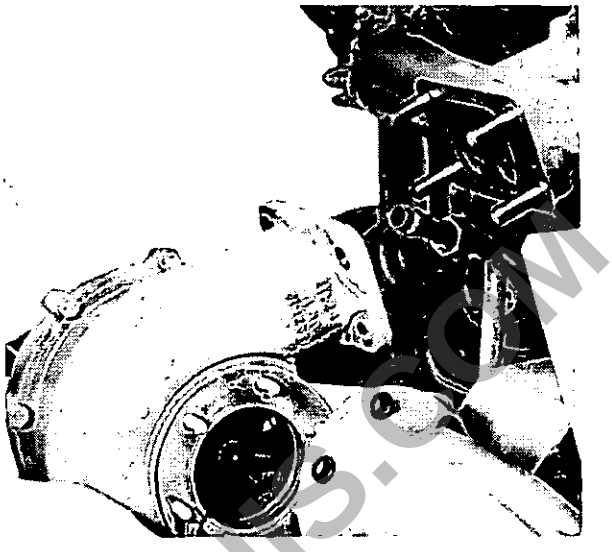
Remove rocker cover and gasket.

Release rocker assembly bracket securing setscrews and lift off rocker assembly. Remove the push rods.

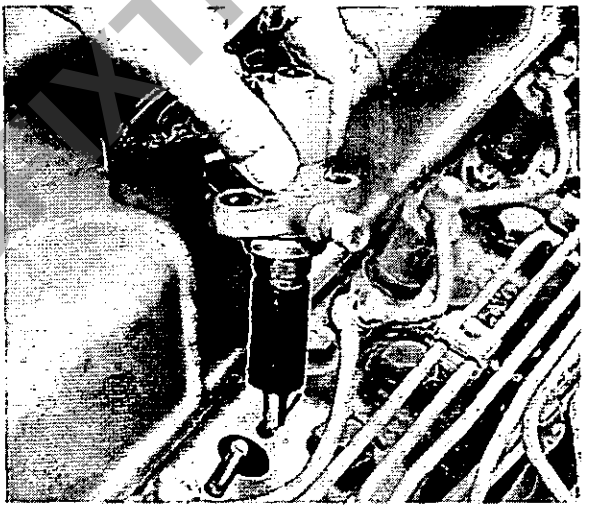
Remove cylinder head nuts and setscrews in reverse order of tightening sequence, see Fig. E.4.

Note position of different length setscrews, see Fig. E.3.

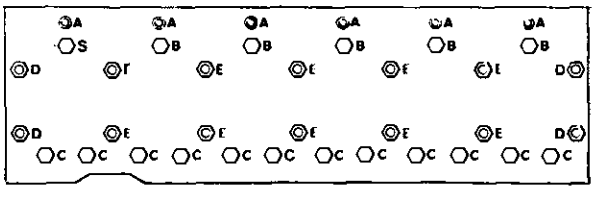
Remove cylinder head.

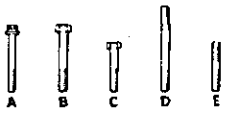


E.1

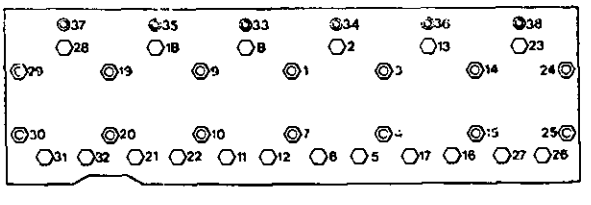


E.2





E.3



E.4

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 12 of 161 pages

The full manual includes:

- All 161 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Perkins T6.3544, 6.3544, 6.3724, H6.3544, HT6.3544, M135, M165T, M200Ti, M240Ti, M275Ti, 6HD100, 6HD150T, 6HD185T Workshop Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual