



J. I. Case

Service Manual

220, 222, 224,

444 & 644

Compact

Service Manual

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KOHLER ENGINE

MODELS K241, K301 & K321

Service Manual No. 9-77714

MANUAL PREVIEW

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The following is intended as a guide to disassembly of the standard engine models--the sequence may have to be varied slightly to facilitate removal of special equipment or accessory items such as motor - generators, starters, etc.

1. Disconnect lead and remove spark plug.
2. Drain fuel tank, remove fuel line at carburetor.
3. Remove air cleaner from carburetor intake.
4. Remove carburetor.
5. Remove blower housing, cylinder baffle and head baffle.
6. Remove starter generator, rotating screen and starter pulley.
7. Flywheel is mounted on tapered portion of the crankshaft. Use of a puller is recommended for removing flywheel. Bumping end of crankshaft with hammer to loosen flywheel should be avoided as this can damage crankshaft.

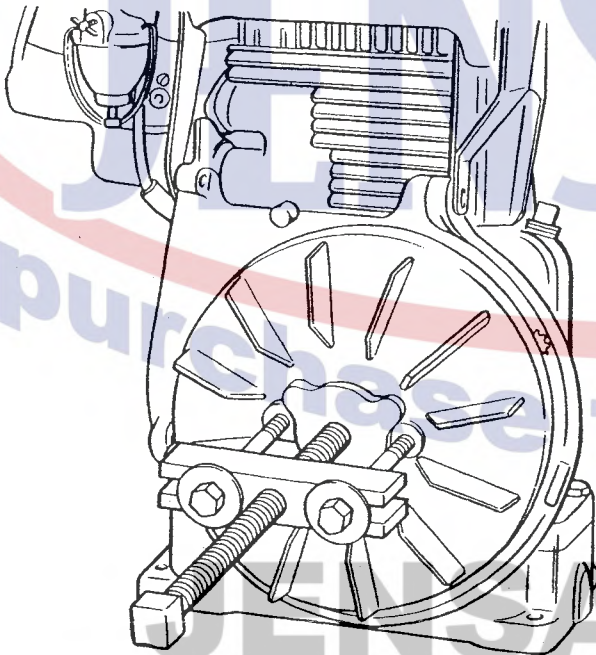


FIGURE 14 REMOVE FLYWHEEL WITH PULLER

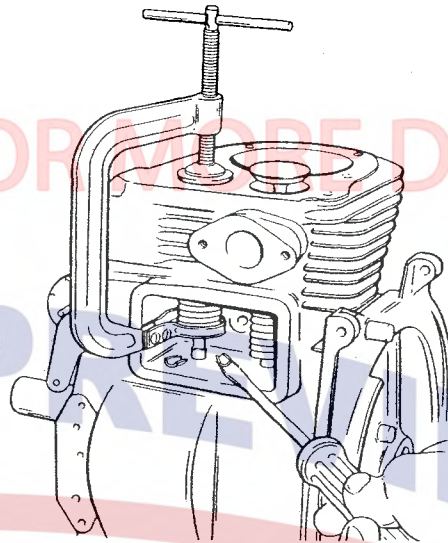


FIGURE 15 USING VALVE SPRING COMPRESSOR

12. Remove oil base and unscrew connecting rod cap. Remove piston assembly from cylinder block.
13. Remove crankshaft, oil seals and, if necessary, antifriction bearings. It may be necessary to press crankshaft out of cylinder block. Bearing plate should be removed first if this is done.

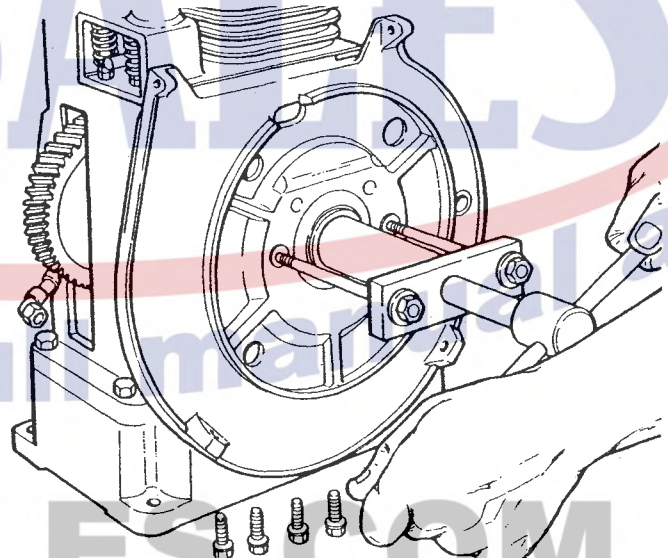


FIGURE 16 REMOVING BEARING PLATE WITH PULLER

8. Remove breaker point cover, breaker point lead, breaker assembly and push rod.
9. Remove valve cover and breather assembly.
10. Remove cylinder head.

11. Raise valve springs with a spring compressor and push valve keepers off valve stems. Remove valve spring retainers, springs and valves.

14. Turn cylinder block upside down and, using a small punch, drive camshaft pin out from power-take-off side of engine. Pin will slide out easily after it is driven free of block.
15. Remove camshaft and valve tappets.
16. Loosen and remove governor arm from governor shaft.
17. Unscrew governor bushing nut and remove governor shaft from inside of cylinder block.

18. Loosen (do not remove) screw located to lower right of governor bushing nut until governor gear is free to slide off stub shaft.

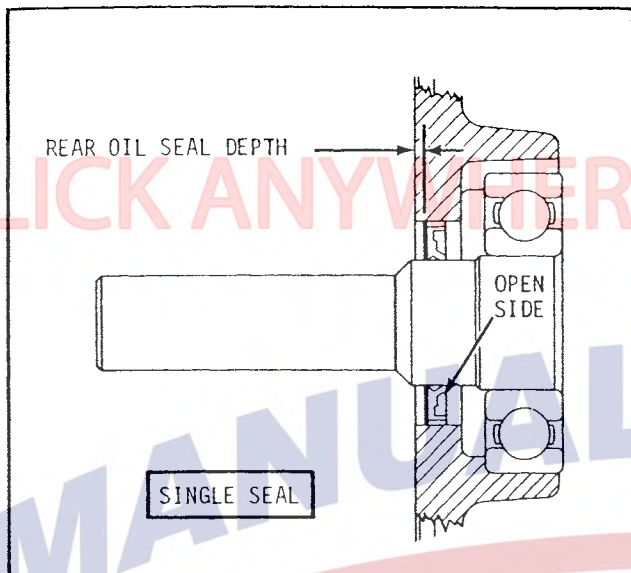


FIGURE 59 REAR OIL SEAL INSTALLATION

9. INSTALLATION OF OIL SEALS

When installing new oil seals, apply a liberal amount of light grease such as lubriplate on the seal lip area. Use seal driver and seal sleeve of appropriate size and install carefully to prevent the seal lip from rolling and creasing. Press against outer edges of seal—press squarely into position to a depth of 1/8 inch (3 mm). Rear oil seal installation details are shown in the above figure.

- A. Apply grease to lip then guide oil seals into position on crankshaft without damaging lips of seals. Any foreign matter or knifelike edge or any bending of seal may cause damage and an oil leak can result.

- B. After oil seals are started on shaft, place block on its side. The oil seals may now be driven squarely into bearing plate and cylinder block.

10. OIL PAN BASE

- A. Use pilot studs to align cylinder block, gasket and oil base.
B. A new gasket must be used to prevent oil leakage.
C. Assemble oil base to block with four bolts.
D. Torque pan bolts to standard torque.

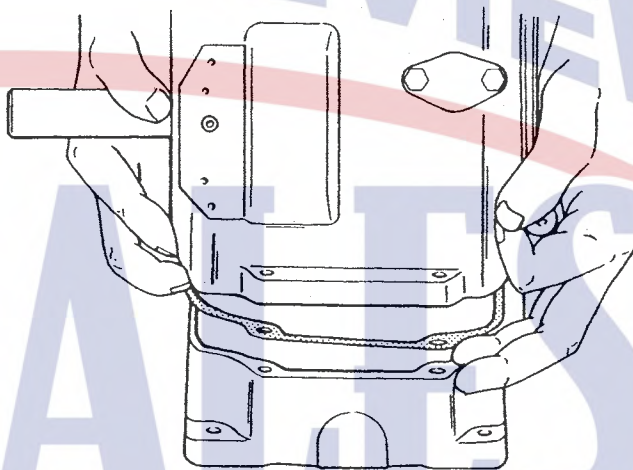
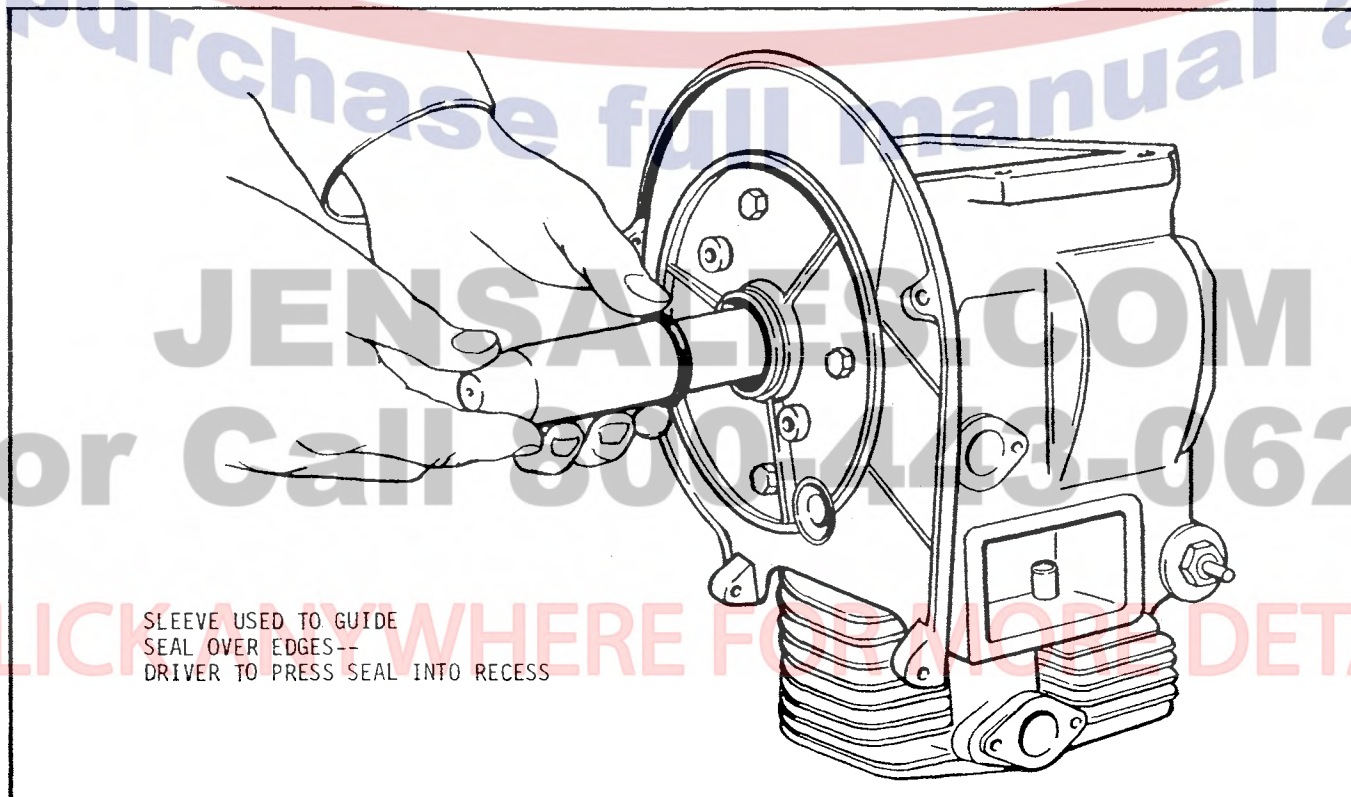


FIGURE 60 INSTALL OIL PAN GASKET



SLEEVE USED TO GUIDE
SEAL OVER EDGES—
DRIVER TO PRESS SEAL INTO RECESS

FIGURE 61 USE SEAL DRIVER AND SLEEVE TO INSTALL FRONT OIL SEAL

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INTRODUCTION

This service manual section, "Troubleshooting the Engine" contains a concise listing of Symptom--Possible Cause--Probable Remedy for many engine problems.

Use an orderly process of elimination when troubleshooting. First eliminate the possible causes that are easy to check or test. Then move into the more complex areas that may require disassembly or more difficult tests.

Refer to the appropriate service manual for proper repair procedures. Refer to the electrical system service manual for troubleshooting the tractor electrical system. (The ignition system is the only electrical area covered in this service manual.)

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INTRODUCTION

This manual has service information for the hydraulic pumps used on hydraulic tractors.

See your parts catalog for the part number of the pump.

See your "HYDRAULIC TEST PROCEDURES" service manual section for pump performance specifications and testing procedures.

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INTRODUCTION

This manual covers service procedures for the hydraulically driven two-speed transmission used on:

200 and 400 series compact tractors
3000 and 4000 series compact tractors
3100 and 4100 series compact tractors
600 and 6000 series compact loaders



This safety alert symbol indicates important safety messages in this manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

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