



Le Roi
**Service, Part, &
Operator's Manual**
D-471
Engine

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LR-SOP-ENGD471

Service, Part, & Operator's Manual

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This instruction section covers the LeRoi model D-471 gas engine and related parts only. For general operating and service instructions, see Instruction Manual No. 471.

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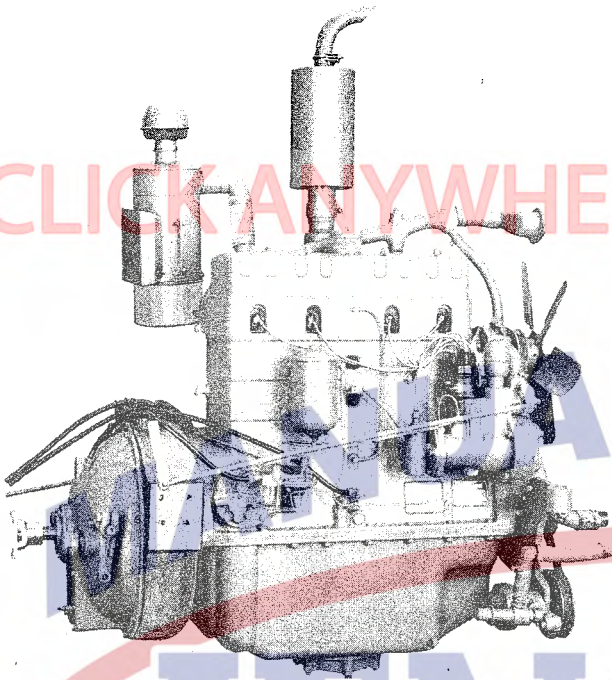
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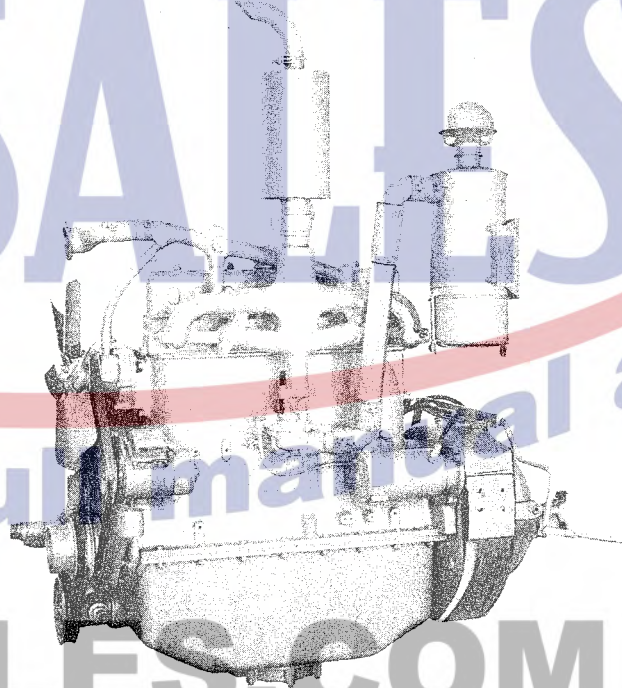
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CLICK ANYWHERE FOR MORE DETAILS



D-471 Engine-Left Side



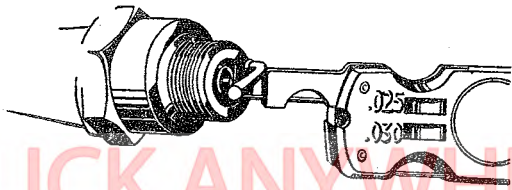
D-471 Engine-Right Side

Le Roi Engine Specifications

Model.....	D-471
Bore, Stroke.....	5" x 6"
Governed Speed - Full Throttle -	
No Load.....	1540 RPM
Crankcase Oil Capacity.....	24 Quarts
Oil Filter Capacity.....	1 Quart
Air Cleaner Oil Capacity.....	5-1/2 U.S. Pints
Gasoline Tank Capacity.....	58 Gallons
Radiator Capacity.....	14 Gallons

NOTE: Throughout this Manual the use of the terms "*LEFT*" and "*RIGHT*" must be understood to avoid confusion when following instructions.

"*LEFT*" and "*RIGHT*" indicate left and right sides of the grader as viewed from the operator's seat, or when standing back of and facing the radiator.



Checking Spark Plug Gap

A gap of .025" to .030", as checked with a round wire feeler gauge, should be maintained at all times. Never bend the center electrode as it will damage the insulator. If the gap between electrodes is too great, due to improper setting or burning off the ends, the engine will misfire and be hard to start.

The spark plug size is 18MM. (Use AC Type 87S, Auto Lite BH-8 or Champion C7.)

b. Cleaning.

The recommended method of cleaning spark plugs is sand-blasting. Never scrape or clean the insulator with anything which will scratch the porcelain because scratched porcelain allows carbon and dirt to accumulate much faster.

8. COOLING SYSTEM.

a. General.

This engine is water-cooled and it is important to use clean water in the cooling system. In some parts of the country the water available may deposit a scale on the walls of the water jackets and radiator and cause overheating of the engine.

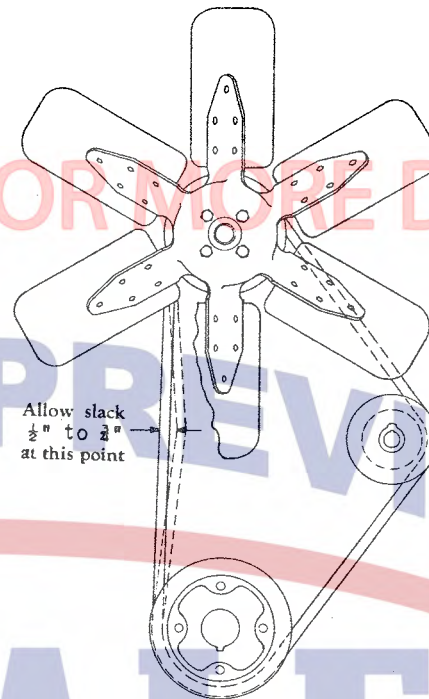
When it is necessary to clean the cooling system of these deposits, this should be done under supervision of a competent mechanic.

b. Draining.

To thoroughly drain the entire cooling system open the drain cock in the lower radiator connection, and also drain cocks in the cylinder block.

c. Water Temperatures.

The water temperature must be held to at least 160°F. for good efficiency and to prevent the formation of sludge. (Radiator shutters are available.)



Correct Fan and Generator Belt Tension

9. FAN AND GENERATOR BELT.

a. General.

The adjustment of the belt should be checked frequently to assure maintenance of the correct tension. The tension of the belt is correct when it can be depressed without effort, approximately 1/2 to 3/4 inch midway between the pulleys.

b. Adjustment.

Adjust the tension of the belt by loosening the generator bracket and moving the generator outward, or change the width of the fan pulley groove. (Loosen the lock nut (480C) and screw pulley flanges together to tighten it, and apart to loosen it. Retighten the lock nut after correct tension is obtained.) After a new belt has been run approximately 64 hours, check the tension and adjust it again if necessary. The belt should at no time contact the bottom of the pulley groove because this will cause the belt to wear. Having a V-belt tighter than the tension specified will also result in excess wear.

c. Removal.

To remove the belt loosen the generator bracket; then work the belt off the pulley.

peratures are obtained, proceed as follows. (Engine should be idling slowly during this operation.)

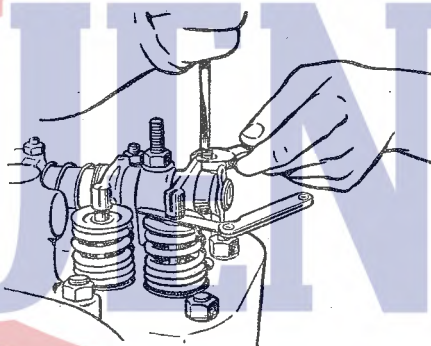
b. Adjustment.

(1) Remove cylinder head cover, being careful not to damage gasket between cover and cylinder head.

(2) Loosen rocker arm lock nut and insert an accurate feeler gauge between rocker arm and valve. Turn rocker arm screw until proper clearance is obtained.

(3) Without further movement of screw, tighten lock nut securely.

(4) Recheck clearance with feeler gauge, as shown below.



Adjusting the Valves

15. CARBON DEPOSITS.

Incorrect adjustment of the carburetor; resulting in too rich a mixture, will cause carbon deposits in the combustion chamber and on the valves and piston heads; whereas too lean a mixture will cause the valve to burn. Excessive carbon deposits will also be caused by the use of oils of incorrect body.

16. REMOVING CARBON AND GRINDING VALVES.

With the valve cover removed and the cylinder head off, the valves are easily accessible for removal. Before removing the valves, see that each valve is marked with a number corresponding to the number of the port in which it is located. Remove all carbon from the cylinder head, cylinder, exhaust valve pockets, valves and piston heads, taking care not to score the valve faces, seats or cylinders with the scraper.

If the valves and valve seats are badly pitted or warped, they should be refaced.

17. VALVES.

a. General.

Intake and exhaust valves are actuated by individual rocker arms mounted on rocker arm shaft and operated by push rods and tappets from camshaft. Oil under pressure is directed to hollow rocker arm shaft which has drilled holes indexing with oil holes in rocker arms.

b. Valve Data.

Stem Diameter..... .433" to .434"
Stem Clearance in Guide
(intake)..... .0025" to .0045"
Stem Clearance in Guide
(exhaust)..... .003" to .005"
Max. Permissible Clearance
(intake)..... .008"
Max. Permissible Clearance
(exhaust)..... .010"
Port Diameter
(intake and exhaust)..... 1-11/16"

c. Reconditioning.

(1) Remove engine cylinder head.

(2) Remove valve spring retainers and remove valves and arrange so they can be replaced in the same ports as removed.

(3) Clean and inspect valves carefully. See that all carbon or other foreign matter is removed from valve head and stem.

(4) Install valve in a suitable grinder, making certain angle is correct, and take a light cut off the face of the valve. Care should be taken that no more material than necessary is taken off in this operation.

To reface the valves and seats, the valves should be ground in a refacing machine, and the seats, which are hardened inserts, should also be ground. The angle for both the valves and seats should be 45°. The width of the seat should be 1/16" to 3/32".

(5) Inspect end of valve stem and face for pitting, scoring, or warping.