

John Deere LP-Gas Engine for 45, 55 and 95 Combines



OPERATORS MANUAL

John Deere LP-Gas Engine for 45, 55
and 95 Combines

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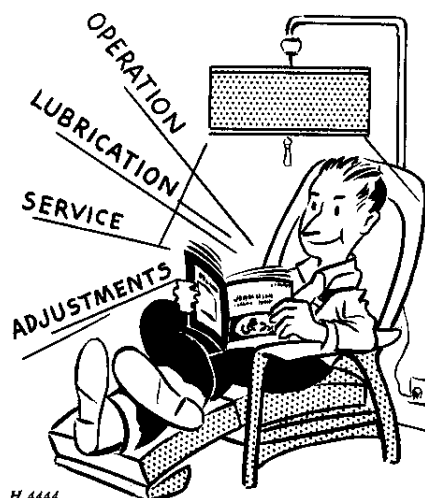
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To the purchaser

The instructions in this manual supplement those in your regular combine operator's manual. This supplement contains only the information for your LP-Gas engine and related parts which is different from information for the regular gasoline engine.

If you should find that you require information not covered in this supplement or your regular combine operator's manual, consult your John Deere dealer. He will be glad to answer any question that may arise regarding the operation and handling of the combine or engine. He has trained mechanics who are kept informed on the best methods of John Deere combine and engine servicing and can give you prompt know-how service in the field or in his shop.

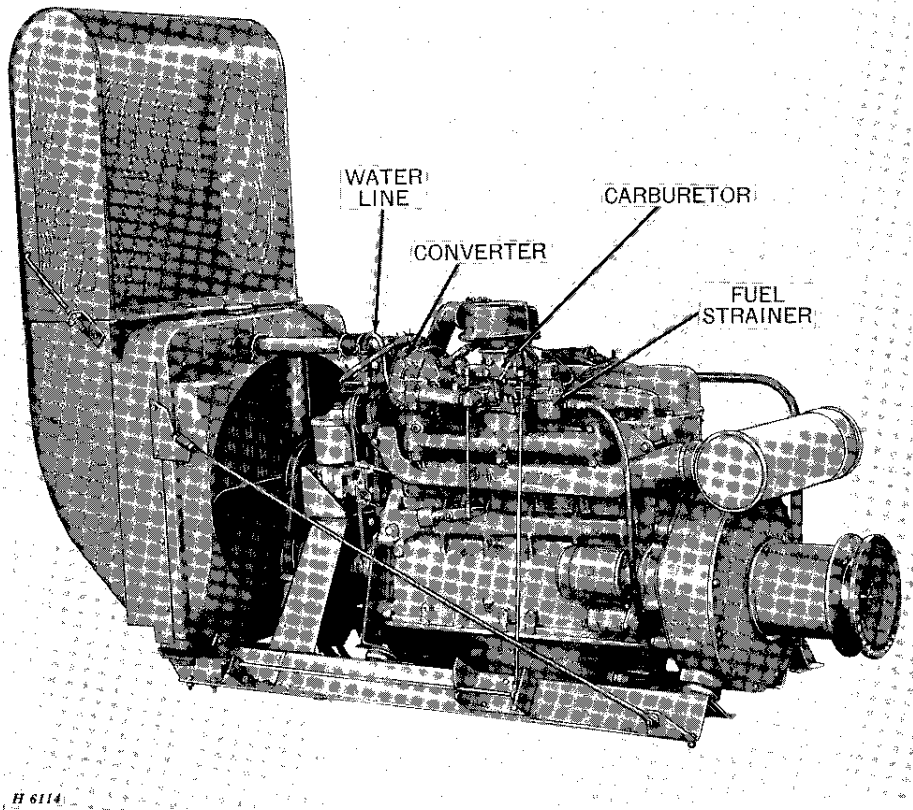


Study this supplement carefully, keep it handy with your regular combine operator's manual, in a safe place, for future reference.

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Specifications



HE-217L Engine

	45 Combine	55 and 95 Combines
Make of engine	John Deere HC-145L	John Deere HE-217L HB-248L*
Bore	3-5/8 In.	3-5/8 In.
Stroke	3-1/2 In.	3-1/2 In.
Brake horsepower	52.8 +	71.5+ 86*+
Number of cylinders	4	6

+ Calculated at 60° F. and 29.92 inches of Hg. at sea level.
*For 95 combines only.

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2 specifications

	45 Combine	55 and 95 Combines
Piston displacement . . .	145 Cu. In.	217 Cu. In. 248 Cu. In.*
Compression ratio . . .	8.2 to 1	8.2 to 1
Speed at full load	2500 rpm	2200 rpm 2500 rpm*
Firing order	1-3-4-2	1-5-3-6-2-4
Type of lubrication . . .	Force feed by gear pump to all connecting rods, main bearings, and oil pump drive, oil strainer in bottom of pan	Force feed by gear pump to all connecting rods, main bearings, and oil pump drive, oil strainer in bottom of pan
Valve arrangement . . .	Valve-in-head	Valve-in-head
Intake valve clearance .	.012	.012
Exhaust valve clearance	.018	.018
Make of governor	Pierce	Pierce
Make of carburetor . . .	Marvel-Schebler	Marvel-Schebler
Spark plug	Champion H-10 or Auto Lite AL-7 or AC-45-L, Gap .025 In. Heat range 1200° F. to 1500° F.	Champion H-10 or Auto Lite AL-7 or AC-45-L, Gap .025 In. Heat range 1200° F. to 1500° F.
Type of fuel	LP-Gas	LP-Gas
Capacities (Approx.)		
Fuel tank	37 U.S. gallons	56 U.S. gallons 66 U.S. gallons*
Cooling system (radiator)	6 U.S. gallons	6 U.S. gallons
Engine crankcase . . .	7 U.S. qts. including oil filter	7 U.S. qts. including oil filter
Air cleaner	1 U.S. quart	1 U.S. quart

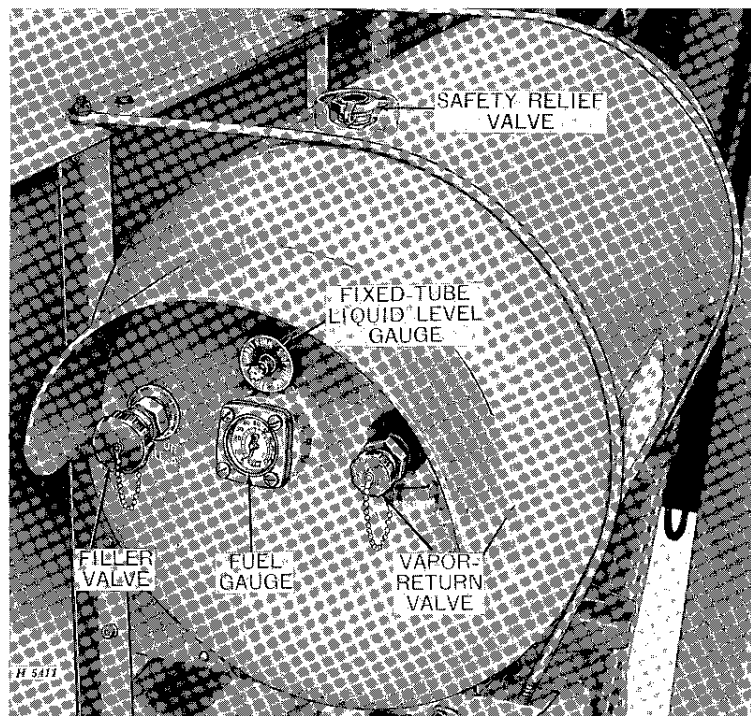
(Specifications and design subject to change without notice.)

Operation

Equipment and controls

The LP-Gas fuel equipment, illustrated and described on the following pages, has been granted the

approval of the Underwriters' Laboratories.



Fuel tank with valves and gauges (45 Combine illustrated)

Fuel tank

The fuel tank is of heavy welded steel construction with a fuel capacity of 37 gallons on the 45 combine, 56 gallons on the 55 combine and 66

gallons on the 95 combine. *NOTE: Capacities listed are based on 85% fill of the total volume of the tanks. The tanks should not be filled more than 85% of total volume because LP-Gas expands as temperature rises.*

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Filler valve

The filler valve, located at the end of the fuel tank, is used for filling the tank. A double check valve, built into the filler valve, automatically prevents any fuel withdrawal or escape.

Vapor-return valve

The vapor-return valve, located beside the filler valve, is also used when filling the tank. This valve permits vapor to return to the storage tank as the combine fuel tank is being filled with liquid, thus equalizing the pressures between the two tanks and permitting easier filling. A built-in excess-flow valve automatically closes if flow through the vapor-return valve becomes excessive. This is a safety device designed to stop flow of vapor if the vapor-return line is broken or disconnected.

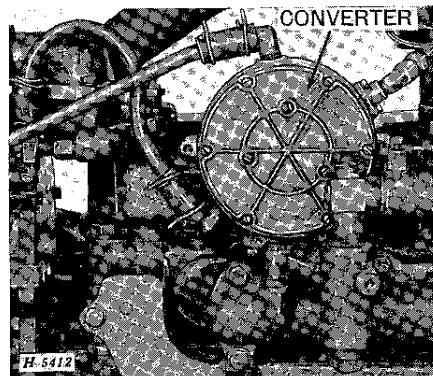
Fixed-tube liquid-level gauge

This gauge, also located at the end of the fuel tank, is used when the tank is being filled. Opening the gauge, when the tank is partially full, releases a fog or mist of fuel from the outlet. When the tank is 85% full, the fog or mist will change to a spray of liquid fuel. During the filling process the gauge should be opened only momentarily at frequent intervals. It should never be left open to let vapor escape while liquid is being pumped into the tank. To do so is extremely hazardous and violates all fire and safety codes. Use the vapor-return valve to assure proper transfer of fuel to combine fuel tank.

Safety relief valve

The safety relief valve will open and permit vapor to escape if the pressure in the tank becomes too great. The valve is set to open at 312 pounds per square inch pressure. If the safety relief valve continually opens in hot weather, consult your fuel dealer. He may be able to supply a different blend of fuel, especially prepared for use in hot weather.

Converter



Converter (95 Combine illustrated)

From the fuel strainer the fuel passes through the automatic shut-off valve and enters a converter which converts the liquid fuel into a gas and reduces the pressure until it is just right for efficient operation in the engine.

Heat must be applied to vaporize the fuel and to prevent freezing of the converter parts which get extremely cold due to heat being absorbed by the fuel as it expands from a liquid into a gas. This heat for vaporizing the fuel is supplied from the combine cooling system. Coolant is taken from the water outlet manifold and flows through passages in the converter. The outgoing coolant is piped to the water pump for recirculation.

Because the engine is started on vapor from the top of the fuel tank, no initial heat is required.

Since the coolant in the combine cooling system circulates through the converter, it is important to use only clean, soft water in the cooling system. Hard water, which might cause formation of scale in the converter, should be avoided. Use of a rust inhibitor is recommended.

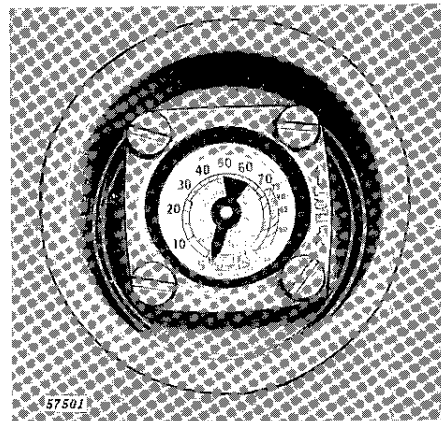
If the combine cooling system is drained to prevent freezing during cold weather, drain the converter by removing the plug shown in the illustration on page 15. Also disconnect and drain the water line of the bottom of the converter.

After every 200 hours of operation, at the time the oil is changed in the crankcase, remove sump drain plug and drain sump of any foreign material.

Be sure both vapor and liquid withdrawal valves are closed, ignition switch is turned off, and engine is cold before removing the plug.

CAUTION: Do not attempt to repair or adjust the converter. Service work should be performed only by qualified servicemen. See your John Deere dealer.

Fuel gauge



The fuel gauge, located at the end of the fuel tank, indicates the liquid level in the fuel tank. It is calibrated to show the percentage of liquid fuel in the tank.

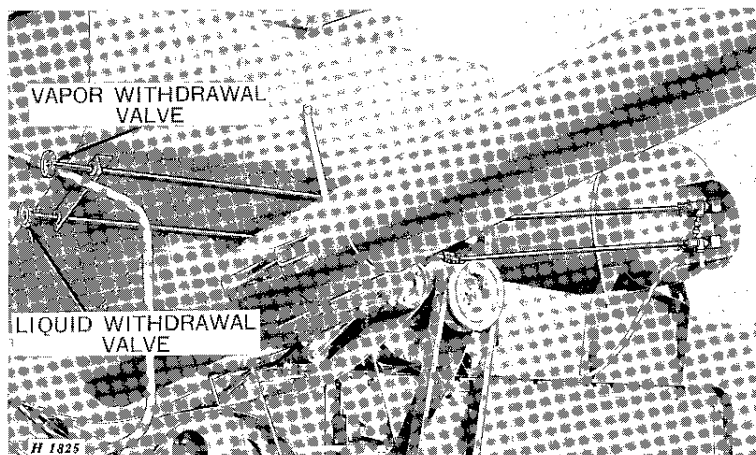
Liquid and vapor withdrawal valves

These valves control the flow of fuel to the engine. The vapor valve, when opened, supplies vapor from the top of the fuel tank for starting the engine.

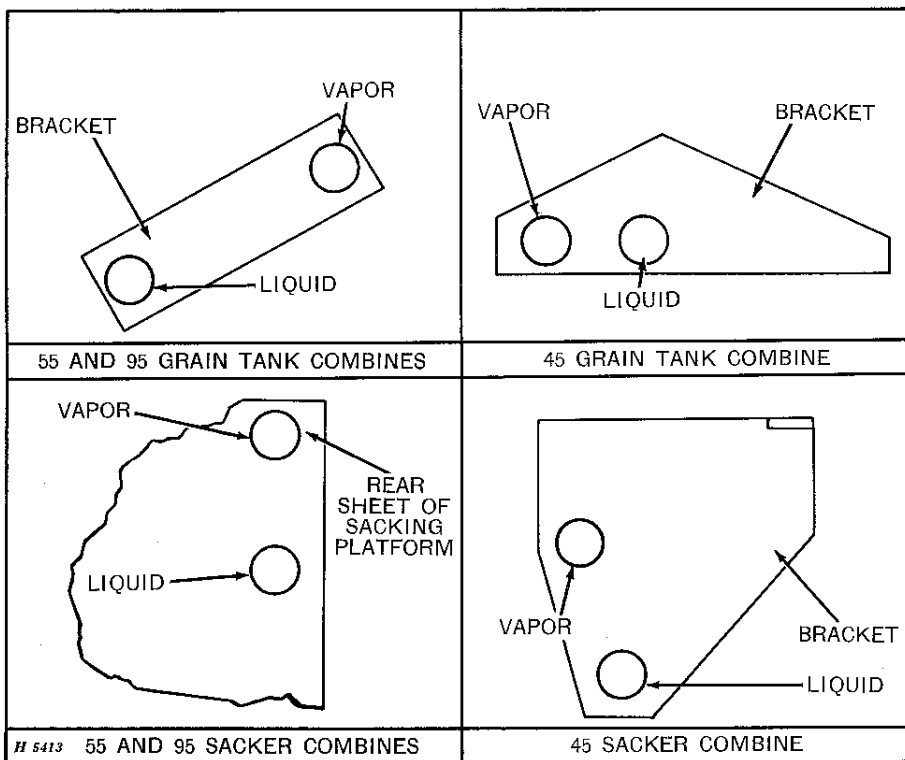
The liquid valve permits withdrawal of liquid fuel from the tank for normal operation.

Both valves are equipped with excess-flow valves which automatically close whenever the flow exceeds the normal amount used to operate the engine. These valves must be opened slowly to prevent closing the excess-flow valves. If a fuel line is accidentally broken, the excess-flow valve instantly trips and permits only a small amount of gas to flow; the excess-flow valves do not shut off the flow completely. If one of the excess-flow valves closes, it can be reset by closing the withdrawal valve manually.

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Liquid and vapor withdrawal valves on 55 Grain Tank Combine



Location of liquid and vapor withdrawal valves



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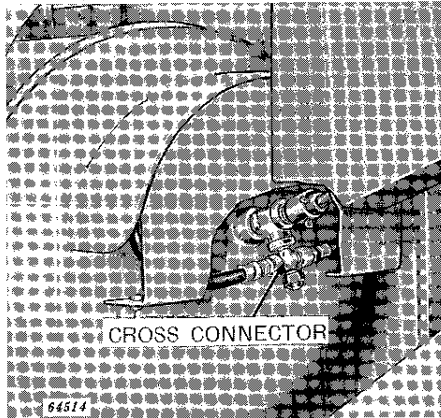
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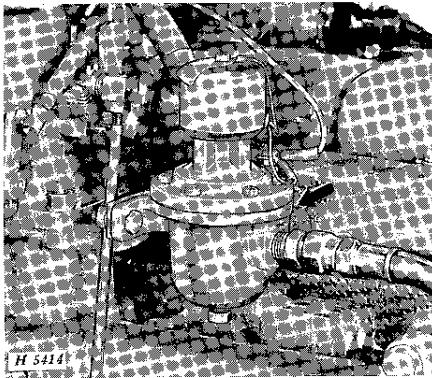
Auxiliary fuel connector



Auxiliary fuel connector (45 Combine illustrated)

The cross connector on the liquid valve connection at the end of the fuel tank provides a handy means of attaching a portable pressure tank of LP-Gas fuel if the combine fuel tank is empty and it is necessary to run the combine to the fuel storage tank.

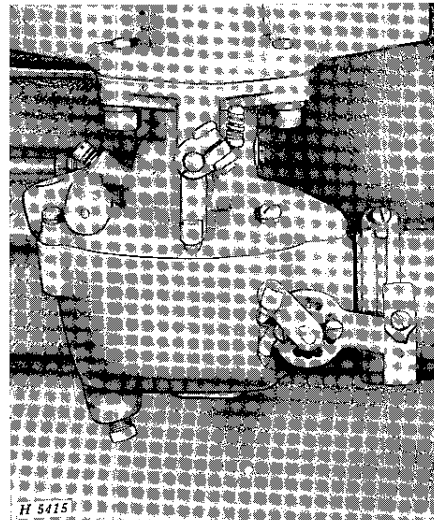
Fuel strainer



The fuel strainer removes particles of dirt or other foreign matter from the fuel after it leaves the tank. An automatic electrically-operated fuel shut-off valve is built into the

strainer as an additional safety factor. When the ignition switch is turned on, the shut-off valve opens. When the switch is turned off, the valve automatically closes to prevent the fuel from entering the engine or other parts of the system. If, for any reason, the electrical system fails to operate, the shut-off valve will close.

Carburetor



55 Combine carburetor illustrated

Vaporized fuel is drawn from the converter into the carburetor where it is mixed with air in the proper quantity to create a combustible mixture.

NOTE: On 95 Combines only, there is no choke control because the fuel mixture valve, connected to the throttle, provides proper mixture for starting the engine, thereby eliminating the need for a choke control. However, since the starting is manually controlled through the throttle linkage, the carburetor is not an automatic type.

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