



Allis Chalmers

Service Manual

5050 Diesel

Service Manual

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AC-S-5050 DSL

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ENGINE

Specifications - Removal - Installation

Crankcase - Cylinder Head - Oil Sump

Valves & Timing Mechanism

Crank Gear Assembly

Fuel System

Lubrication

Cooling

Fits & Tolerances - Torque Specifications

- Service Tools

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REMOVING THE ENGINE FROM TRACTOR

Proceed according to the following sequence:

1. Remove the radiator grille after turning the upper stop pin in either direction, then disconnect the battery cables and remove battery. (See Figure 4).

Remove the right side panel and the left side panel, the latter with the central hood section, by removing the fastenings which secure it to the front and rear sections.

2. Drain all fluids and close the fuel valve. Drain the crankcase oil through the bottom plug hole and the crankcase and radiator water through the plug (Item 14, Figure 5) located on the left side of the engine.



CAUTION: This does not drain all coolant from block.

3. Remove the front axle with radiator, after disconnecting or detaching:
 - (a) Transmission oil suction line (Item 21, Figure 6) to hydraulic pump and delivery line (Item 20) to hydraulic lift; making sure to plug up holes to prevent spillage of oil.

Band clamp securing air cleaner hose (Item 19) to intake manifold, water inlet and outlet hoses (Items 6 and 15, Figure 5) from radiator and, finally, the exhaust muffler (Item 11);

 - (c) Steering drag link (Item 12) from steering arm.
 - (d) Remove bolts holding ram anchor to transmission housing.

Lock the parking brake.

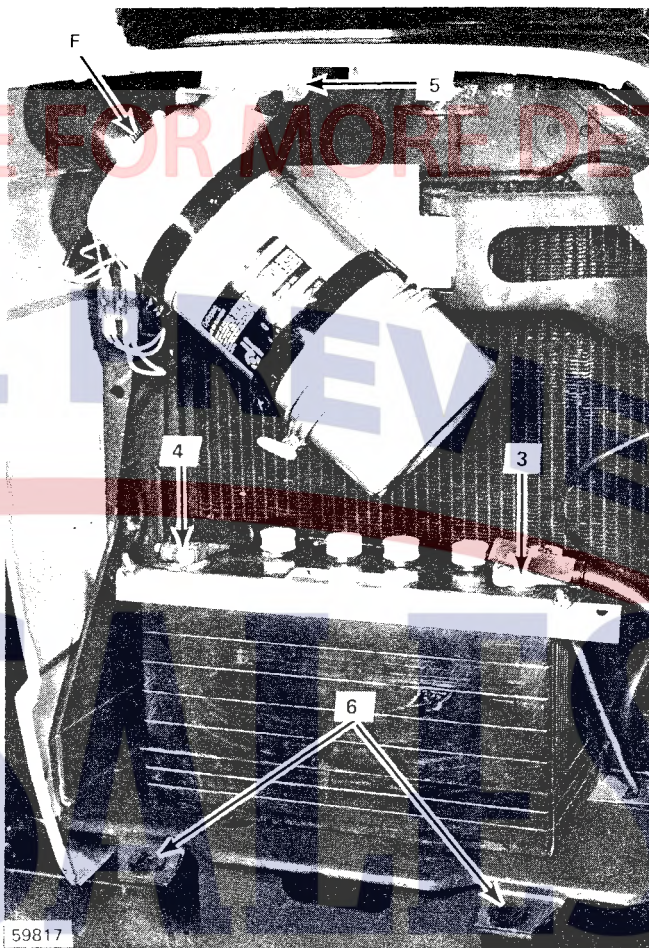
Insert two wooden wedge blocks on the axle and lift tractor with a hydraulic jack or hoist until free from the engine; place shop stands or wooden blocks under the transmission case, remove the capscrews (Item C², Figure 5) attaching axle to oil sump and, finally, remove the front axle assembly cowlings and radiator.



CAUTION: When using the axle wedges be sure they fit and are driven in tight. Also any blocks or stands used in splitting the tractor should be stable. The brakes should be locked by stepping on the brake pedals and pulling and parking brake back.

Be sure any slings or chains are capable of supporting the piston of the tractor to be hoisted.

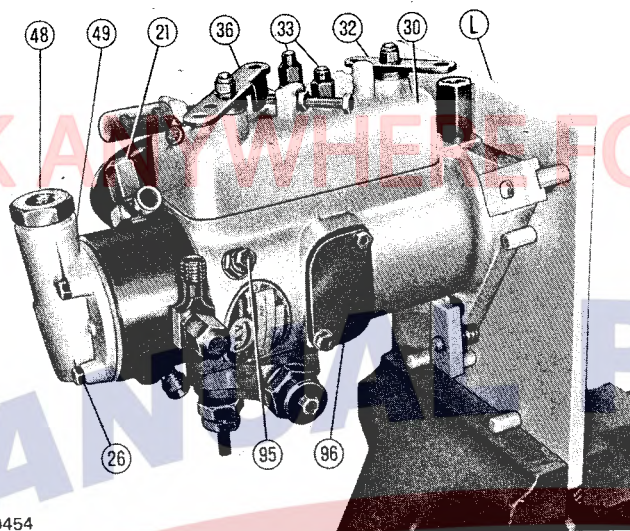
4. Remove the rear hood section with instrument and rear panels:



NOTE: The F.W.A. battery hold down is slightly different.
FIGURE 4 - Front view of engine without cowlings

F. Air cleaner band clamp 5. Grille lock
3. Battery ground cable 6. Lower support pin holes
4. Positive terminal cable.

- (a) The starting and lighting switch (Item 26) Figure 7.
 - (b) Remove the rear hood, instrument panel and rear panel attaching capscrews;
 - (c) Disconnect the connections located behind the instrument panel and unscrew the tachometer flexible drive (Item 9, Figure 5).
5. Remove fuel tank, as follows:
 - (a) Disconnect connection (Item 29, Starter Figure 7) from rear lamp cable (Item 27), and cable (Item 28) from the starting safety switch located on the transmission case cover



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FIGURE 61 - Pump mounted on dismantling and assembly fixture (L)

- | | |
|------------------------------|---|
| 21. High pressure connection | 48. Fuel inlet connection |
| 26. End plate capscrew | 49. End plate with transfer pressure regulating valve |
| 30. Control cover | 95. Bleed screw |
| 32. Shut-off lever | 96. Inspection cover |
| 33. Cover nut | |
| 36. Throttle arm | |

PUMP OVERHAUL

Disassembly, reassembly, testing and calibration of the pump are operations requiring specialized servicemen and the availability of special testing and measuring equipment. Thorough ambient cleanliness is a must as even the smallest of abrasive particles may damage the pump, lower its efficiency and shorten its service life.

Dip all parts in diesel fuel prior to reassembly. For removal refer to the outline on page 43. See rear of section for Special Tools.

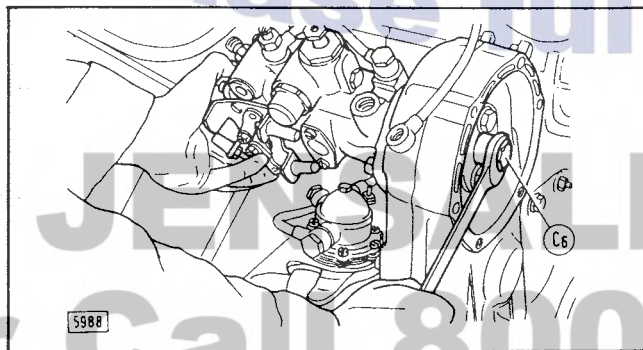


FIGURE 61A - Removing pump from engine.

C₆. Pump shaft attachment screw.

PUMP REMOVAL

First prepare the pump by cleaning the adjacent area to prevent ingress of dirt through the open connection bores following removal of the pipes. Disconnect the control lever linkage and fuel pipes from the pump.

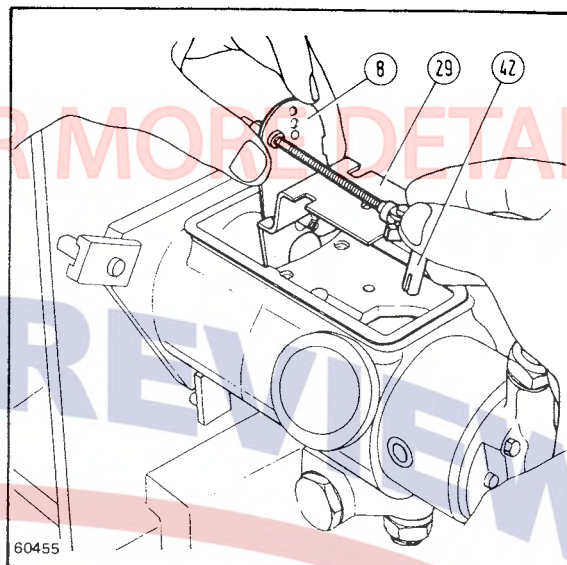


FIGURE 62 - Removing (installing) governor control assembly and metering valve (42)

- | | |
|-------------------------|-------------|
| 8. Governor control arm | 29. Fulcrum |
|-------------------------|-------------|

Remove the inspection cover and gasket from the timing gear cover and the nuts to 60A and washers securing the pump flange to the timing gear case.

Remove the pump shaft central nut (C₆) which serves also as puller then withdraw the pump from its driving gear.

DISASSEMBLY

Before dismantling the pump, drain the oil by removing the side inspection lid (Item 96, Figure 61) and then attach the pump to the supporting plate (Item L) held in a bench vise as shown in the figures, or attach it to a support installed on the swivel arm. Remove high pressure pipe fittings after taking note of their arrangement and remove parts as outlined.

Dip the parts indicated in diesel fuel only.

Governor Cover - Item 30, Figure 61

Remove the shut-off and throttle control levers (Items 32 and 36) from their respective shafts, the nuts and washers from the cover studs (Item 33) and the dust seals from the shafts.

Install a protector on the throttle control lever shaft and push on end to withdraw it from below, lifting, simultaneously, the governor cover (Item 30).

Disconnect both ends of control spring (Item 38) and remove the idling spring with its guide (Item 31) which remain loose.

Install a protector on the shut-off lever shaft and push down to split the shaft from the cover.

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POWER TRAIN

Description - Specifications - Lubrication

Clutch

Transmission

Bevel Gear & Differential

Brakes

Final Drives & Rear Wheels

Front Axle & Steering

Power Take-Off

Fits & Tolerances - Torque Specifications
- Service Tools

MANUAL PREVIEW

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POWER TRAIN AND ATTACHMENT LUBRICANTS

Fill Point	Check Level	Clean Element	Change	Lubricant	Capacity
Transmission and Hydraulics	10 Hrs.	200 Hrs.	Once Each Year	Allis-Chalmers 821 Power Fluid	19 Qts.
Final Drives	50 Hrs.		Once Each Year	Allis-Chalmers 821 Power Fluid	1.75 Qts.
Steering Box	200 Hrs.			Allis-Chalmers 821 Power Fluid	0.42 Qts.
Front Wheel Hubs	400 Hrs.		Once Each Year	Allis-Chalmers Multi-Purpose Grease	0.3 Qts.
Grease Fittings	10 Hrs.			Allis-Chalmers Multi-Purpose Grease	
Fuel Tank Capacity					14.25 Gal. (53.93 lt.) Approx.

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HYDRAULIC LIFT AND POWER STEERING

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HYDRAULIC LIFT AND POWER STEERING

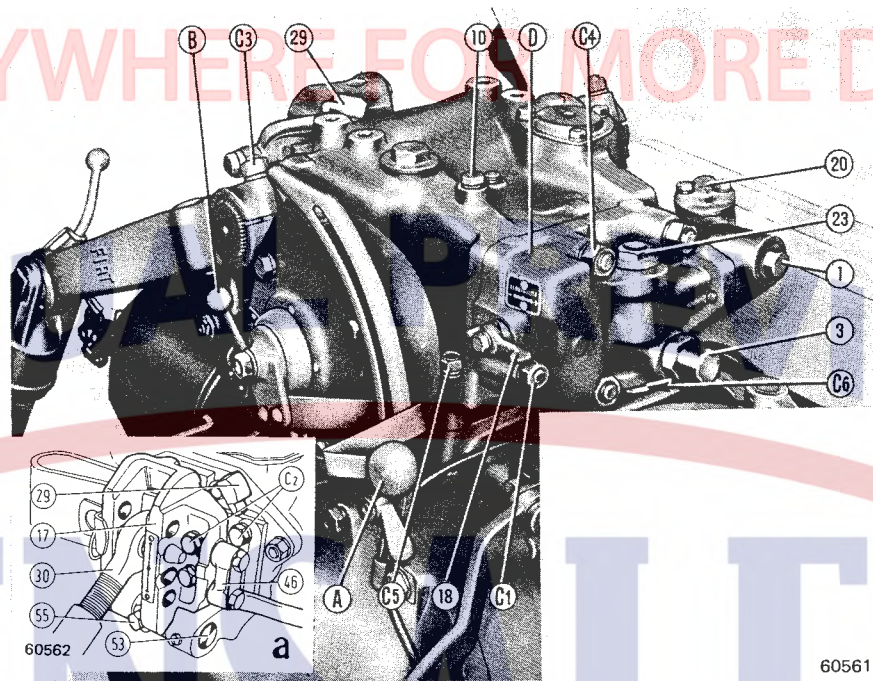


FIGURE 1 - Hydraulic lift installed on tractor

a. Rear view of top link bracket and its four mounting holes.

- | | |
|--|--|
| A. Lift control lever | 3. Cylinder safety valve |
| B. Operation selector lever | 10. Arms maximum lift adjusting screw |
| C ₁ and C ₄ . Stud nuts securing hydraulic control valve to lift carcase | 17. Top link bracket |
| C ₂ . Capscrews securing control spring to top link bracket and to rear cover | 18. Sensitivity regulation lever (turn it towards "+" to increase sensitivity or "-" to reduce it) |
| C ₃ . Bolt nuts securing lift arms to rocker shaft | 20. Oil line from pump |
| C ₅ . Capscrews securing hydraulic lift to transmission housing | 23. Pilot valve retaining plug |
| C ₆ . Dump valve plug | 29. Top link bracket blocking wedge |
| D. Hydraulic control valve | 30. Top link |
| 1. Pressure relief valve | 46. Draft control lever |
| | 53. Top link bracket trunnion |
| | 55. Trunnion setscrew |

GENERAL

The hydraulic lift unit installed on tractor model 5050 consists of the following major units:

1. An oil pump (Item P, Figure 30) incorporating the pressure loaded principle by which service wear between gear and faces is taken up automatically. This pump is driven by the engine timing gears.
2. A hydraulic lift unit (Figure 1) which includes position control, draft control and associated linkage and using oil from the transmission housing.

The lift unit contains the lift cylinder. The piston acts through a ballhead push rod upon a lever keyed to the rockshaft. The hydraulic control valve and control levers are attached to the same body.

3. A standard remote ram valve.
4. A three-point linkage (Figure 17) with lift rods, top link and adjustable check chains.