848G Skidder

Technical Manual

John Deere Dubuque Works
TM1898 (Dec00)
ENGLISH

0. General Information

0010 How To Use This Book

1. Serial Numbers

This Manual covers the following range of 848G Skidder serial numbers:

2. Component Numbers

The manual is divided into Chapters. Chapter 1, for example, details the engine system and includes the engine mounting, cooling system, coupling, exhaust and air intake systems. Each chapter starts with a Table of Contents giving details and page references.

Each Chapter is further divided into smaller sections. Each section is identified with a unique number that relates to the warranty system. For example, all parts used in the engine air intake system are found under section 1700.

3. Page Layout

At the top of each page are two sets of numbers.

The 'page' number (A), at the outside corner, consists of the four digit section number followed by the page number in that section. Each section is numbered sequentially from one. For example, 1800 - 3, would be the third page of Section 1800, Exhaust System.

The 'Issue' number (B) also comprises two sets of numbers separated by a hyphen. The first numbers identify the issue date of that section of the manual. The numbers following the hyphen are the issue number of the section and are used to control updating in the field. For example, 06/2000 - 02, would indicate Revision 2, released June, 2000.

At the bottom of each page is a model identification and the type of manual (C). The model identification may identify a unique product or a range of products (848G Service Manual for example).

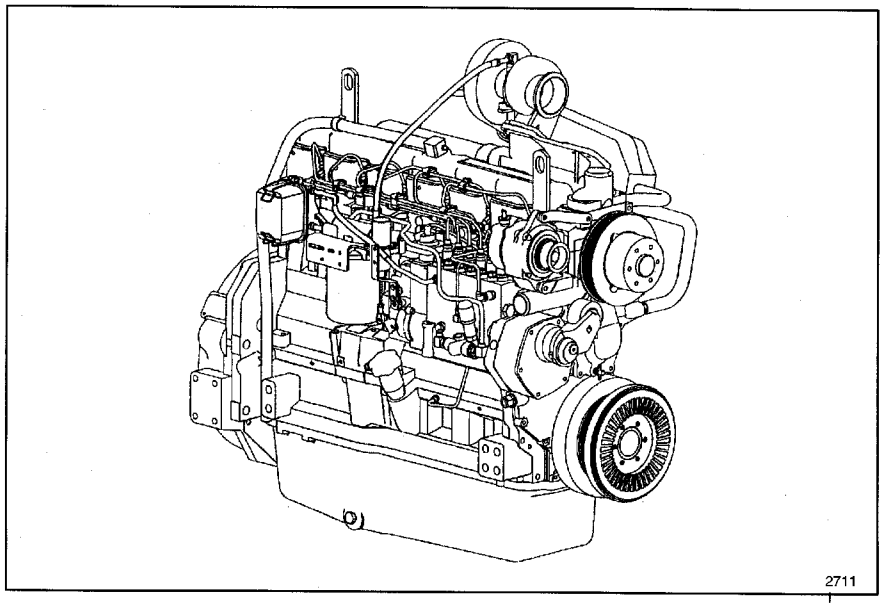
3. Page Layout

B A

1100 Engine

1. Description and Operation

1.1 General



The primary source of power for the skidder is a turbocharged, aftercooled, six cylinder John Deere engine.

Model ..... John Deere 6081AF
Cylinders 6
Displacement ..... 8.1 Liters (496 cu. in.)
Rated Power (HP) ..... 149 Kw (200 HP) @ 2200 RPM

The engine is mounted in front of the operator cab and provides power directly to the transmission via a flex-plate connector and hydrostatic torque converter system.

Power to the hydraulic pump and the transmission charge pump is mechanically transmitted around the torque converter. The air conditioning compressor is belt driven from the cooling fan hub.

C

848G Skidder Service Manual

4. Abbreviations

The abbreviations in the following list are common. While we have endeavored to use 'industry standard' abbreviations wherever possible, common practice mandates that historical usage be maintained.

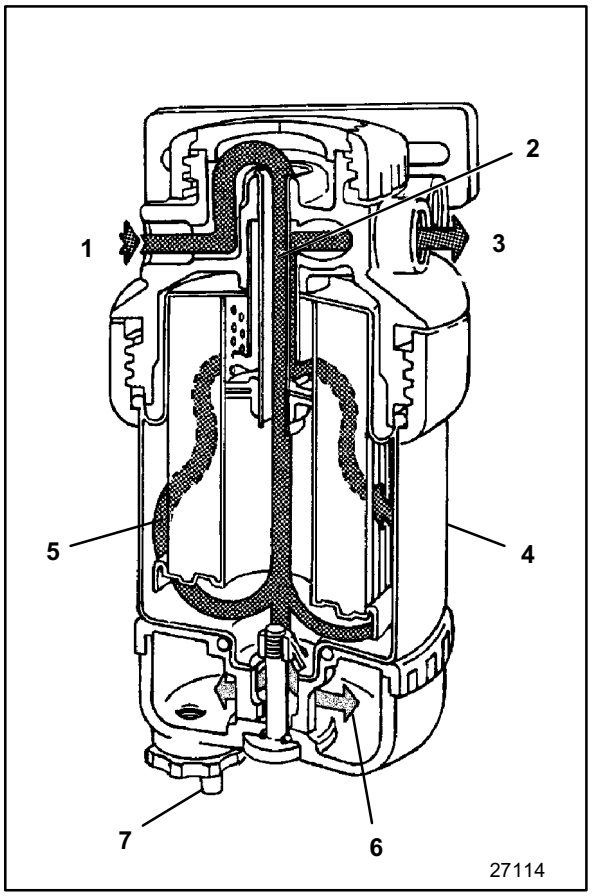
ADJ	adjust; adjuster
ADPTR	adapter
ALT	alternator
ANG	angle
ASSY	assembly
AUX	auxiliary
AWG	American Wire Gage
BATT	battery
BLK	black; block
BLU	blue
BRG	bearing
BRK	brake
BS	bar saw
BU	backup
BUSH	bushing
C	Celsius; Centigrade
CARR	carrier
CBL	cable
CF	carrier frame
CHK	check
CM	centimeter
CMPRSR	compressor
CONV	converter
CRDL	cradle
CS	capscrew
CTR	circle saw center
CUM	Cummins
CYL	cylinder
D	diameter
DEG	degree(s)
DL	delimber
EL	elbow
EMGCY	emergency
ENG	engine
EXT	extension
F	Fahrenheit
FD	front drive
FH	flat head
FLT	flat foot
FT	feet
FTG	fitting
FWD	forward
GP	group
GR	grapple
GRN	green
HARN	harness
HD	heavy duty
HDLNR	headliner
HH	hex head
HP	high pressure
HSG	housing
HYD	hydraulic
ID	inside diameter
IN	inch; inches
INCL	includes
INSTR	instrument
INT	internal
JS	joystick
LF	left front
LG	long
LH	left hand
LK	lock
LP	low pressure
LR	left rear
LWR	lower

4. Abbreviations

MACH	machine
MECH	mechanism
MM	millimeter
MT	mount
MTG	mounting; mating
MTR	motor
OBS	obsolete
OD	outside diameter
OPR	operator
OPT	optional
ORN	orange
PC	piece
PF	power frame
PHIL	Phillips
PIN	pinion
PKG	package
PLCS	places
PNL	panel
PO	part of...
PRESS	pressure
PSI	pounds/square inch
REF	reference
REINF	reinforce; reinforcing
REINFMT	reinforcement
REV	reverse
RF	right front
RH	right hand
RLF	relief
RND	round
RR	right rear
SEC	section
SH	socket head
SHT	sheet
SKT	socket
SLTD	slotted
SN	serial number
SPCL	special
SPD	speed
SPI	single pump isolated
SPRSN	suppression
SQ	square
STD	standard
TEMP	temperature
TJ	Timberjack
TS	topping saw
TYP	typical
UPR	upper
VIO	violet
VLV	valve
W/	with
W/G	with guard
W/0	without
WHT	white
WLDMT	weldment
WS	windshield
WSHR	washer
5P	five port
8P	eight port
9P	nine port
10P	ten port

1. Description and Operation

1.2 Primary Filter (Fuel/water Separator)



The primary fuel filter/water separator is a single-stage filter. Fuel enters the filter at the inlet, then flows to the center port, travels to the bottom of the filter element, onward to the outboard side of the filter, up the sides and back inward through the media before exiting filter through outlet to the fuel supply pump. The filter element is attached to the base with a threaded (detent) ring.

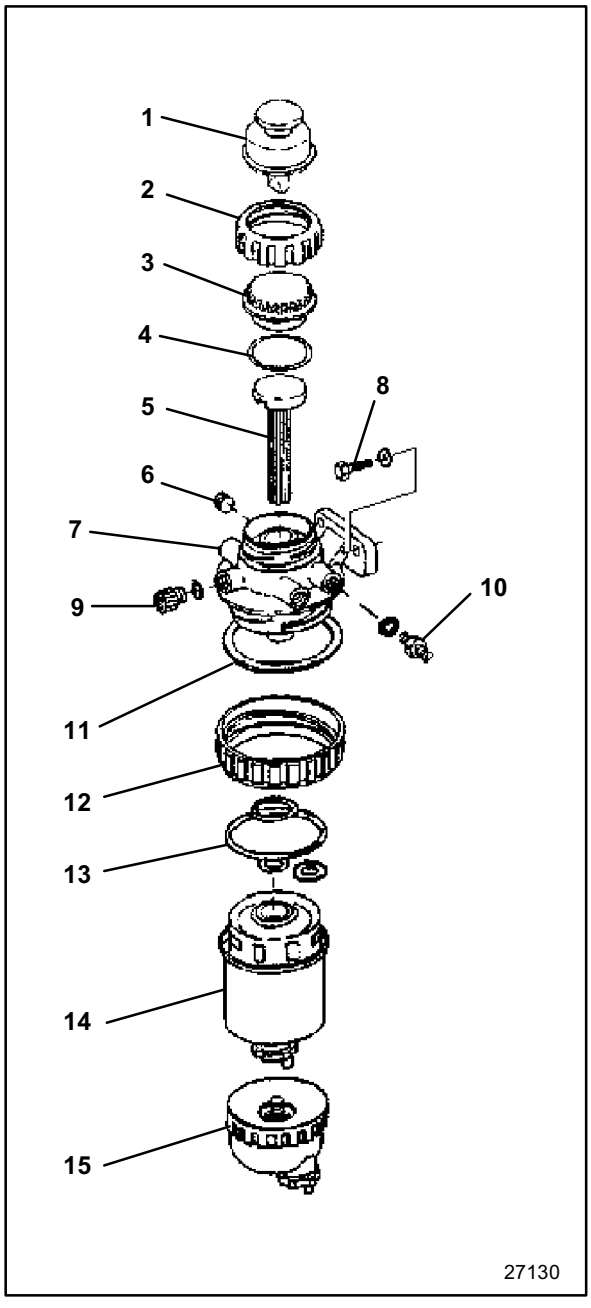
Water and contaminants settle at the bottom of the water separator (clear sediment bowl). A drain plug is provided to drain these contaminants from system.

1. Fuel Inlet
2. Center Port
3. Fuel Outlet
4. Filter Element
5. Fuel
6. Water and Contaminants
7. Drain Plug

1. Description and Operation

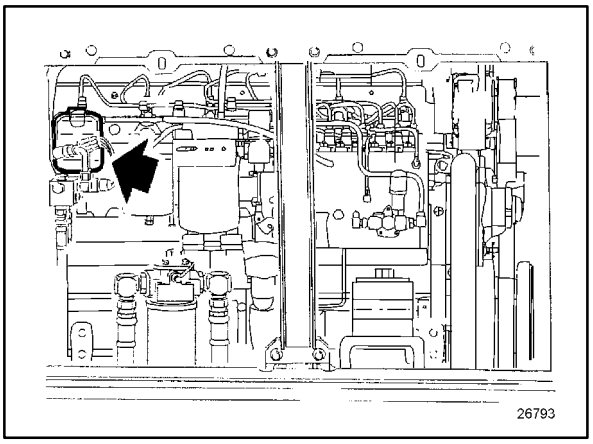
1.2 Primary Filter (Fuel/water Separator)

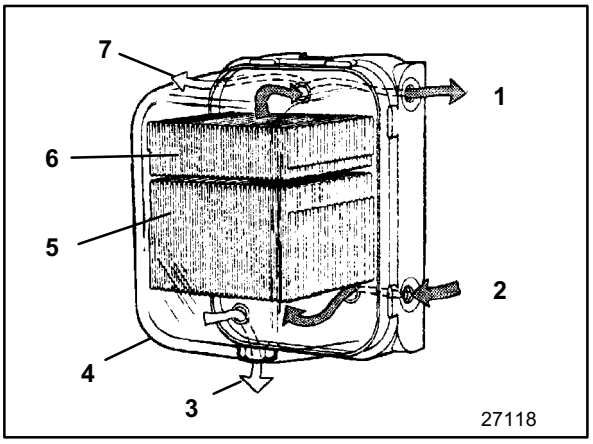
1. Primer Assembly
2. Retaining Ring
3. Cap
4. O-Ring
5. Stem
6. Plug
7. Filter Head
8. Filter Mounting Hardware
   - Cap Screw
   - Washer
9. Bleed Screw and O-Ring
10. Fitting and O-ring
11. Seal
12. Retaining Ring
13. Seal Kit
14. Filter Element
15. Water Separator Bowl



1. Description and Operation

1.3 Final Fuel Filter





Fuel enters the filter through the inlet port and flows through a first and second stage filtering medias before flowing through outlet port to the injection pump.

The filtering media is housed in the metal sediment bowl and epoxied to the bowl as one assembly.

Since water and other contaminants may settle to the bottom of the sediment bowl, a drain plug is provided to permit their removal.

An air vent enables air in the fuel system to be expelled to the outside through the filters when bleed plug is loosened while pumping hand primer on fuel supply pump or primary fuel filter.

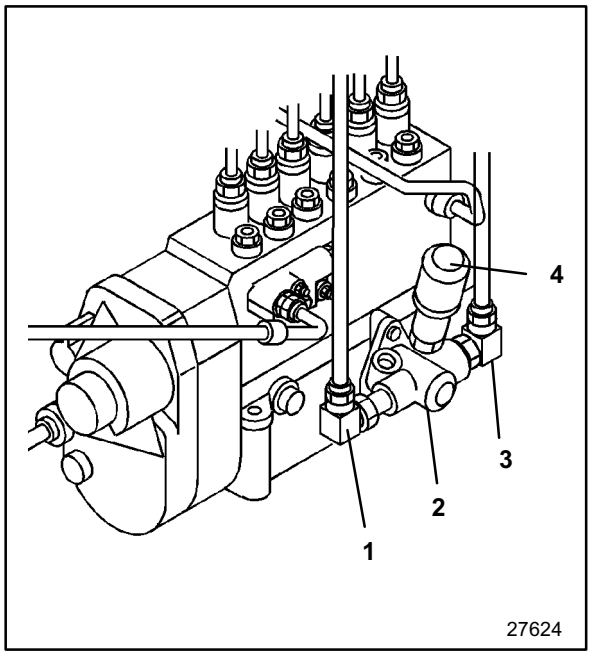
1. Outlet Port
2. Inlet Port
3. Drain Plug
4. Sediment Bowl
5. First Stage Filtering Media
6. Second Stage Filtering Media
7. Air Vent

1. Description and Operation

1.4 Fuel Supply Pump

The supply pump is mounted on the side of the injection pump housing and is driven by the injection pump camshaft. Fuel enters the supply pump through the inlet port, is pressurized by a plunger, and discharged through outlet port. The hand primer provides manual pump operation for bleeding air from the fuel system.

1. Outlet Port
2. Supply Pump
3. Inlet Port
4. Hand Primer



Robert Bosch and Denso plunger-type fuel supply pumps are used for 6081 engine applications.

Fuel supply pumps are furnished as complete assemblies for repair. Only the primer, washers, and fittings are available as separate parts.

Note:
See the John Deere Operation and Maintenance Manual for Powertech 8.1 L 6081 OEM Diesel Engines (OMRG24828) and the John Deere Operation and Diagnostics Manual for Powertech 8.1 L 6081 OEM Diesel Engines (CTM 134) for more information on servicing the supply pump.

1. Description and Operation

1.5 Fuel Injection System

See the John Deere Operation and Diagnostics Manual for Powertech 8.1 L 6081 OEM Diesel Engines (CTM 134) for information on fuel injection system theory of operation and diagnostic testing procedures.

See the John Deere Repair Manual for Powertech 8.1 L 6081 OEM Diesel Engines (CTM 86) for information on servicing the fuel injection system.

Have an authorized diesel repair station perform any internal service or test stand calibration required on injection pumps.

See Section 1100, Engine, for more information.

1. Description and Operation

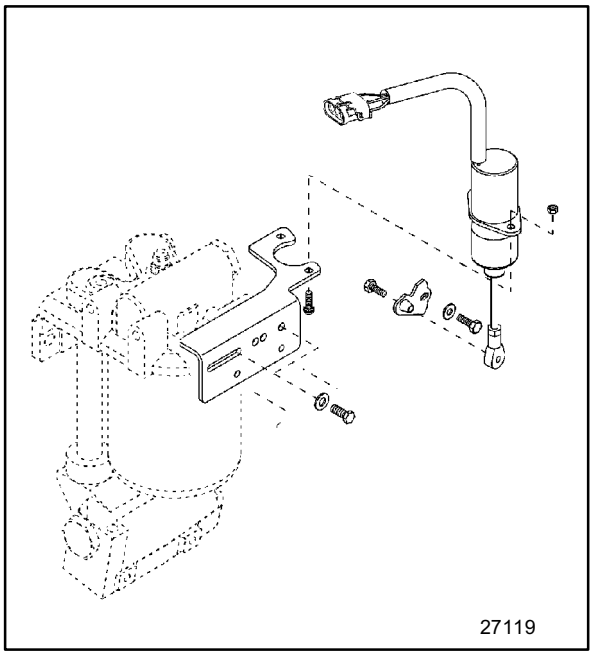
1.6 Fuel Shutoff Solenoid

The fuel shut-off solenoid is mounted on a bracket on the oil filter assembly on the right hand side of the engine.

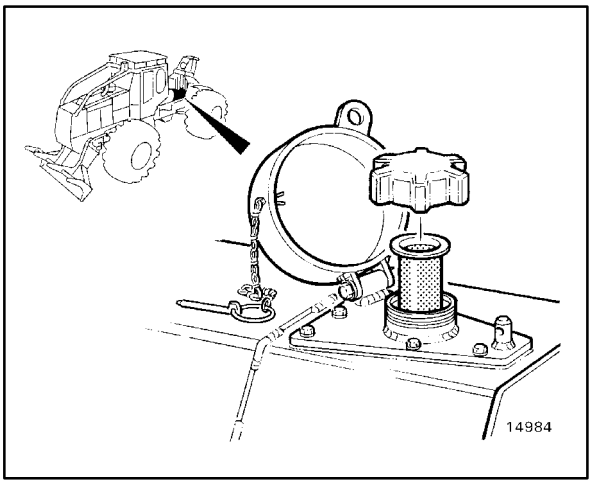
The solenoid will shut off fuel to the injection pump when the ignition switch is turned off.

The connector can be disconnected during servicing procedures to prevent accidental starting of the engine.

See Section 3000, Electrical, and Section 3312, Monitor, for more information.



2. Checking the Fuel Level



CAUTION

Never fill the fuel tank with the engine running, while you, or anyone nearby is smoking or when near an open flame.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Avoid overfilling the tank or spilling fuel. If fuel is spilled, clean it up immediately.

Fill the tank at the end of each day. This helps prevent condensation forming in an empty tank overnight.

See Section 9800, General Machine Specifications, Fluids and Lubricants, for recommended fuel.

The fuel level is displayed on the instrument panel.

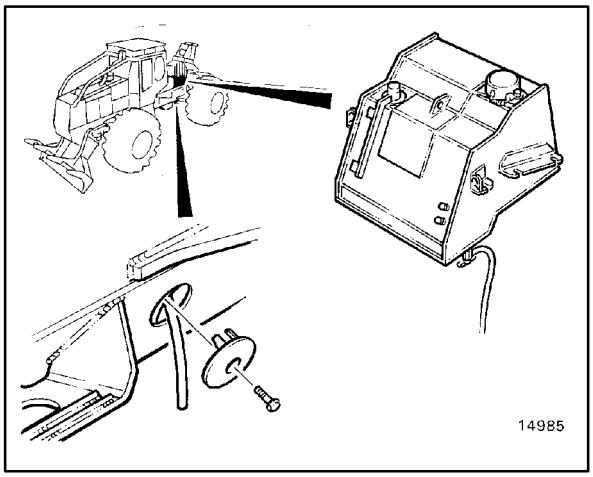
Before filling, check the inlet screen for debris or dirt. Remove and clean the inlet screen if necessary.

3. Draining Water from Fuel Tank

Remove the access plug in the rear frame and pull the drain hose through.

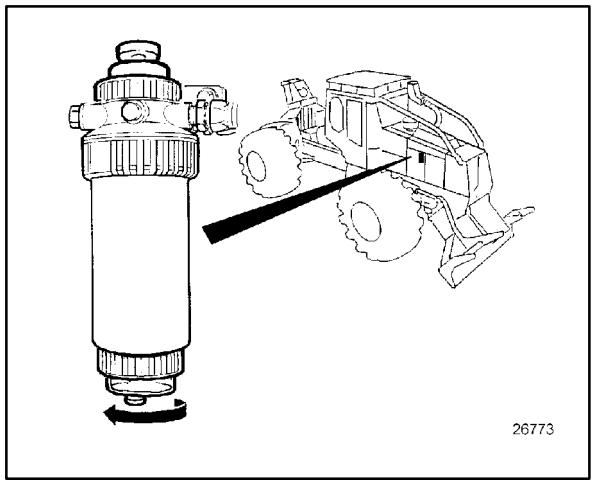
Open the drain cock and drain approximately one pint (1/2 liter) of fuel from the tank into a suitable container to remove any water or sediment .

Close the drain cock, install the drain hose and replace the access plug.



4. Filters

4.1 Checking the Primary Filter (Fuel/Water Separator)



Check the glass sediment bowl of the primary fuel filter / water separator for water or debris.

Loosen the thumb screw and drain water and sediment into a suitable container.

Tighten the drain screw.

4. Filters

4.2 Replacing the Primary Filter (Fuel/water Separator)

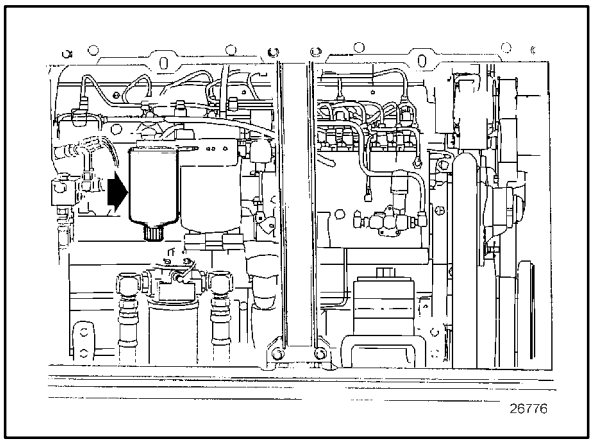
Thoroughly clean fuel filter / water separator assembly and surrounding area.

Place container under filter drain.

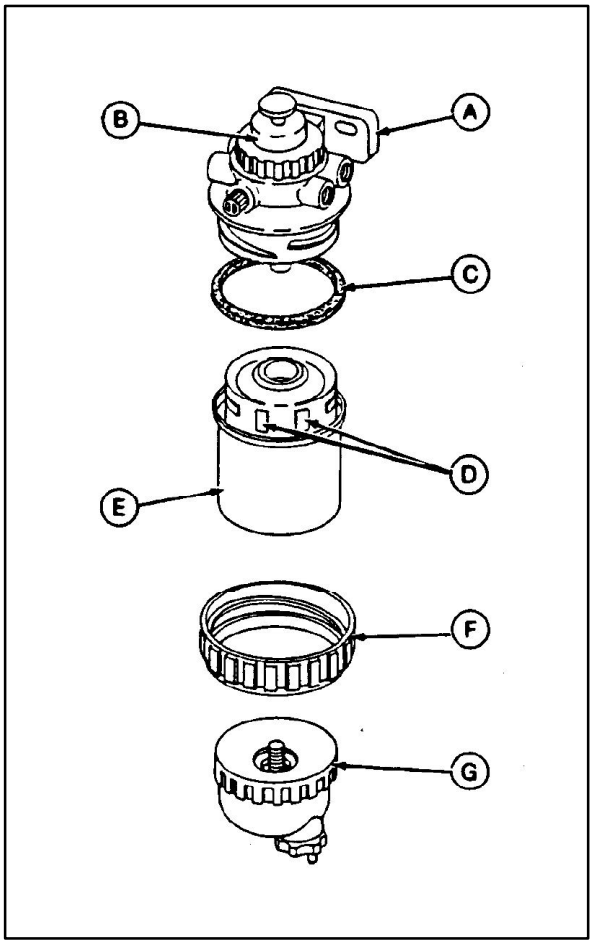
Drain all fuel from filter. Dispose of waste properly.

Turn retaining ring 1/4 turn counterclockwise. Remove ring with filter element.

Turn sediment bowl counterclockwise to remove from filter assemble. Drain and clean separator bowl. Dry with compressed air.

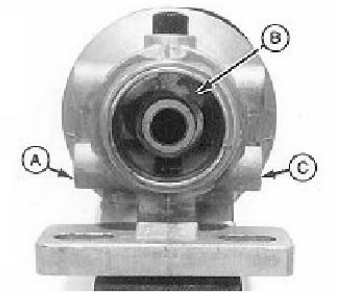


A. Mounting Base
B. Hand Primer
C. Dust Seal
D. Vertical Locators
E. Filter Element
F. Retaining Ring
G. Water Separator Bowl

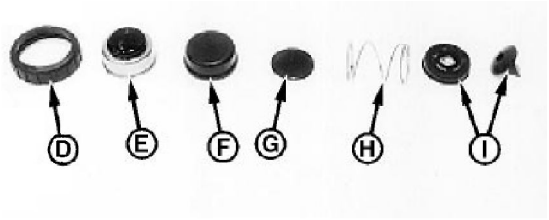


4. Filters

4.2 Replacing the Primary Filter (Fuel/water Separator)



A—Fuel Inlet Line Fitting
B—Filter Base
C—Plug



Remove hand primer from fuel filter base. Disassemble hand primer assembly (D - I) and clean.

A. Fuel Inlet Line Fitting
B. Filter Base
C. Plug
D. Retaining Ring
E. Pump Knob
F. Spring Cover
G. Spring Seat
H. Spring
I. Diaphragm

Remove fuel inlet line from fitting (A) and remove plug (C). Flush any debris from filter base (B).

Install fuel inlet plug and fuel inlet line.

Assemble fuel primer assembly and install onto fuel filter base.

Install water separator bowl onto new filter element. Tighten securely.

Install new filter element onto mounting base. It may be necessary to rotate filter for correct alignment.

NOTE: Notice raised vertical locators on the filter element. These locators ensure proper alignment of filter to filter base.

Install retaining ring to filter base, making certain that dust seal is in place on filter base. Tighten retaining ring until it locks into detent position and a 'click' sound is heard.

Bleed the fuel system.

4. Filters

4.3 Replacing Final Fuel Filter

Keep a small container under the filter drain plug to catch draining fuel.

Loosen bleed plug (C) on side of filter base. Remove drain plug (B) to drain fuel from fuel filter. Dispose of waste properly.

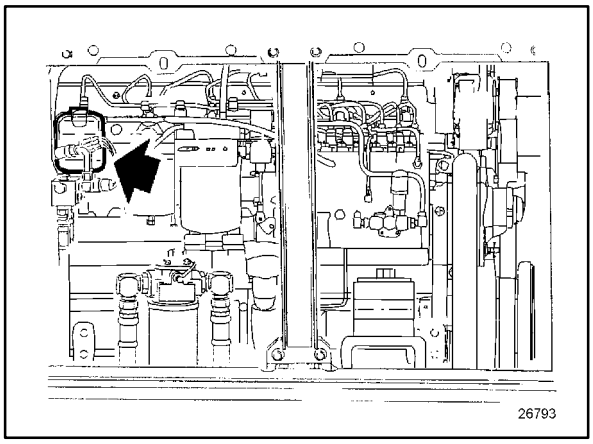
With fuel filter firm against base, lift up on top retaining spring and pull down on bottom retaining spring. Pull fuel filter off guide pins (A) of fuel filter base and discard.

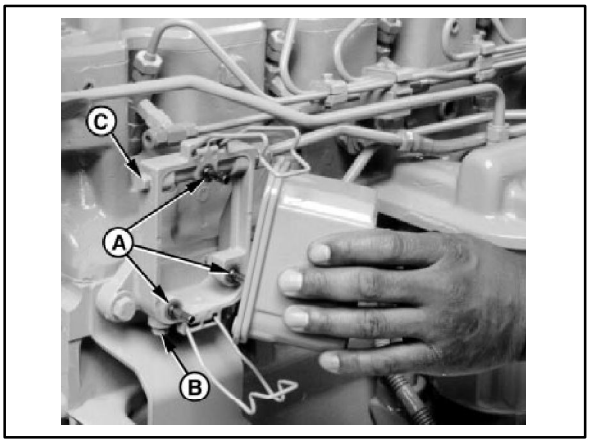
Install new fuel filter onto guide pins of fuel filter base. Hold filter firmly against the base.

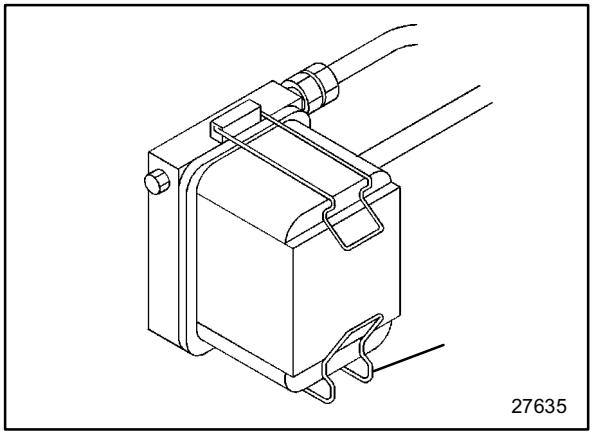
Secure bottom filter retaining spring (D) first, then secure top retaining spring.

Install new drain plug (B). Tighten drain plug and bleed plug securely. Do not overtighten.

Bleed the fuel system.

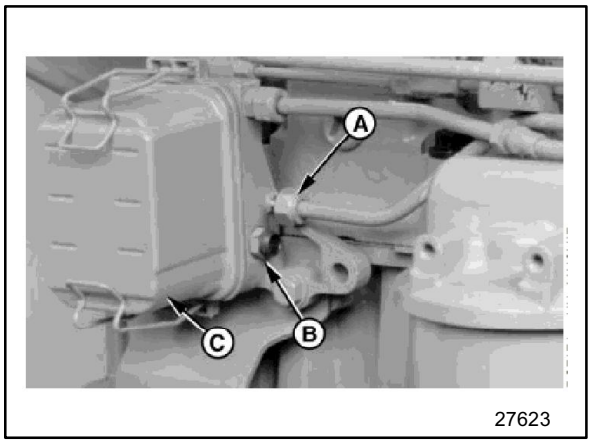






4. Filters

4.4 Replace Final Fuel Filter Check Valve



Drain and remove fuel filter (C).

Remove fuel filter inlet line (A).

Inspect and clean fuel filter base (if needed).

Remove check valve assembly (B) from fuel filter base and discard.

Install new check valve assembly and tighten securely.

Install fuel inlet line and tighten connection to 17 Nm (12 lb-ft) maximum. DO NOT overtighten.

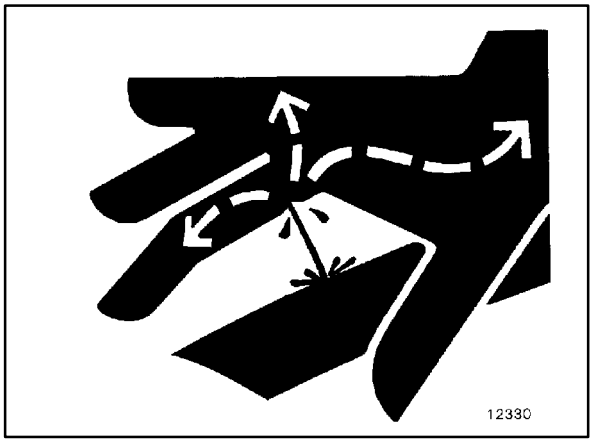
Install fuel filter and bleed fuel system.

5. Bleeding the Fuel System

CAUTION

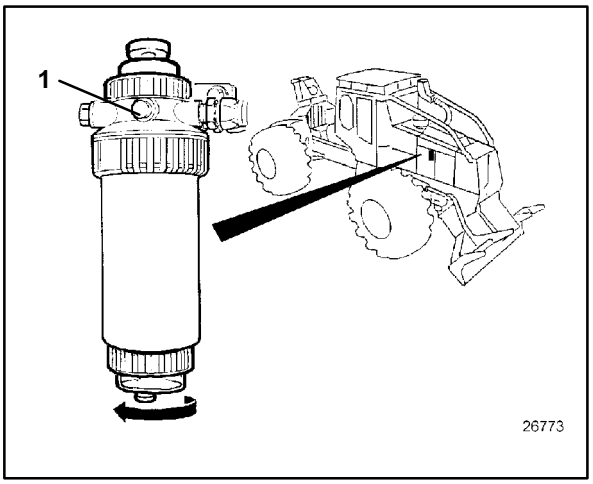
Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

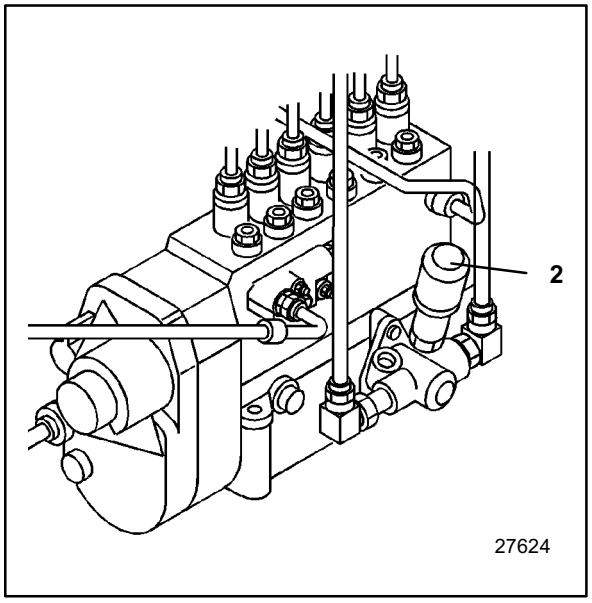
If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.



Whenever the fuel system has been opened up for service, it will be necessary to bleed air from the system.

5. Bleeding the Fuel System





At Primary Fuel Filter (Fuel/water Separator):

Drain water and sediments from clear sediment bowl.

Loosen air bleed vent screw (1) on fuel filter base.

Operate hand primer (2) until fuel free from air bubbles flows from air bleed vent hole.

Tighten vent screw as hand primer is held down.

To continue, bleed air at final filter.

5. Bleeding the Fuel System

At rectangular Final Fuel Filter:

Check filter drain screw to be sure it is tight.

Turn key switch to ON position.

Loosen bleed screw (1).

Operate hand primer (2) until fuel free from air bubbles flows from air bleed vent hole.

Tighten vent screw as hand primer is held down. DO NOT overtighten.

Start engine and check for leaks.

If engine will not start, it may be necessary to bleed air from fuel system at fuel injection nozzles.