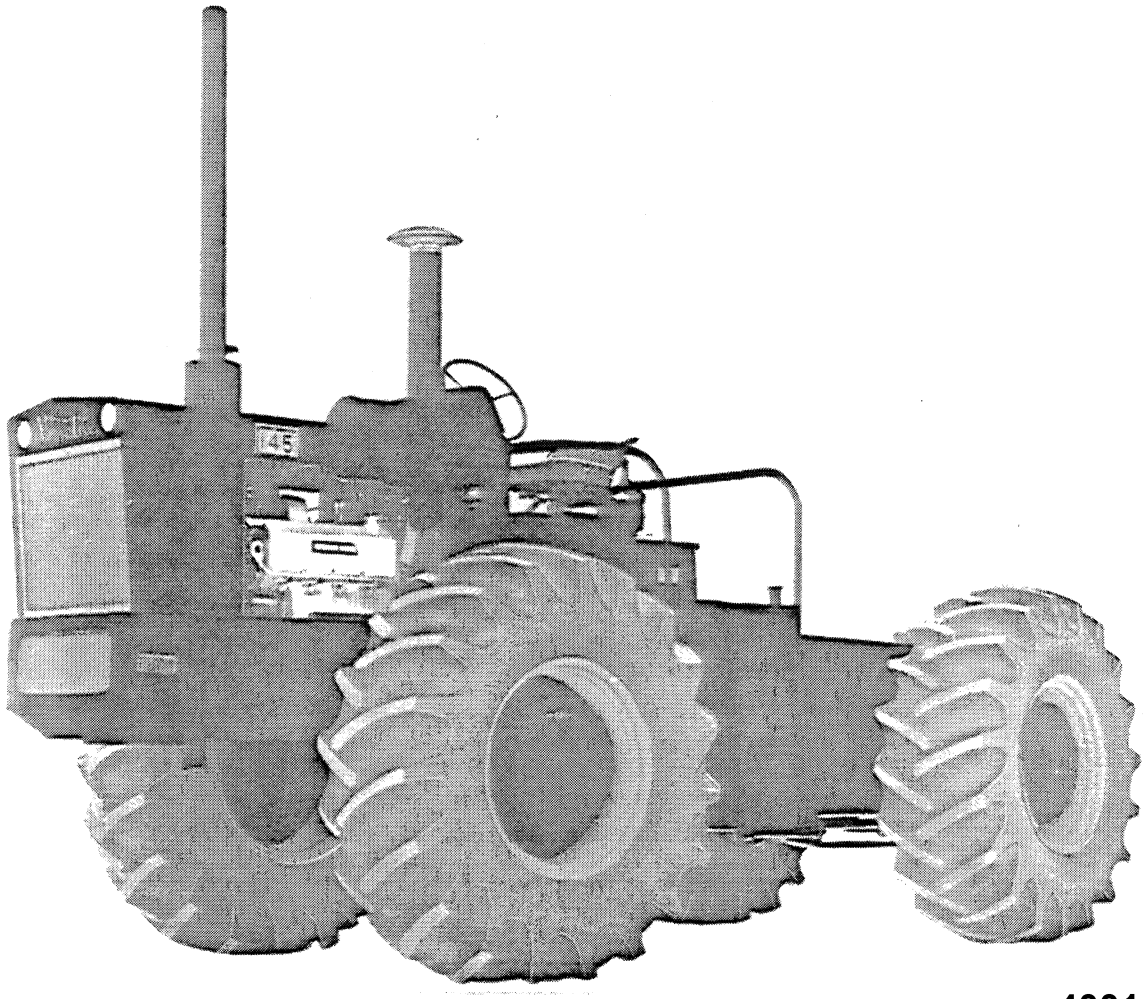
VERSATILE

Service Manual

FORD
NEW HOLLAND

4 Wheel Drive Tractors
Models D118 – G125
and D145



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GENERAL SPECIFICATIONS

ENGINE—MODEL G-125

Make & Model	FORD Industrial engine, Model C4PC, V-8, 90° overhead valve.
Displacement	391 cu. in.
Bore & Stroke	4.05 in. x 3.79 in.
Rated Horsepower	165 hp @ 2,800 rpm.
Compression Ratio	7.6 to one.
Cylinder Heads	Special alloy iron, stress relieved.
Cylinder & Crankcase	Cast integral.
Pistons	Full skirted aluminum alloy with integral steel band, cam ground, tin plated.
Piston Rings	Chrome plated top compression, phosphate coated second compression, chrome plated steel rail oil control.
Crankshaft	Five bearings, precision moulded, special alloy iron, induction hardened.
Valves - Exhaust	Flexible head, tungsten-cobalt faced, sodium filled chrome plated stems.
Valves - Intake	Flexible head, nickel alloy steel.
Valve Seat Inserts - Exhaust	Tungsten-cobalt alloy.
Lubrication	Full pressure to all bearings, full flow filter, rotor type internal oil pump.
Oil Capacity	8 Imp. qt.
Spark Plugs	Turbo action, 18 mm.
Electrical System	12 volt.

Ignition	Battery.
Distributor	Centrifugal and vacuum ignition advance.
Alternator	12 volt, 40 amp.
Carburetor	Two venturi, down draft.
Governor	Mechanical - centrifugal.
Fuel Pump	Mechanical, diaphragm.
Cooling System	Series type.
Temperature Control	Thermostat in coolant outlet.
Water Pump	High volume centrifugal, pre-lubricated.
Engine Weight	Fan to flywheel - 721 lb.

ENGINE—MODELS D-118 & D-145

	D-118	D-145
Make	CUMMINS.	CUMMINS.
Model	V6-140.	V8-185.
Displacement	352 cu. in.	470 cu. in.
Bore & Stroke	4-5/8 in. x 3-1/2 in.	4-5/8 in. x 3-1/2 in.
Rated Horsepower	135 hp @ 3,000 rpm.	180 hp @ 3,000 rpm.
Compression Ratio	17.4 to one.	17.4 to one.
Bearings - Main & Connecting Rod	Precision type, steel backed inserts.	
Cam Shaft	Single cam shaft controls all valves and injector movement.	
Cam Shaft Followers	Roller Type.	
Combustion Chamber	CUMMINS, open type.	
Crankshaft	Fully counterweighted, induction hardened.	

Cylinder Block	Alloy cast iron.
Cylinder Liners	Wet type, easily replaceable.
Fuel System	CUMMINS PT wear compensating system with integral flyweight type governor, internal fuel lines and insert type injectors.
Gear Train	Located at rear of cylinder block.
Lubrication	Full pressure to all bearings, gear type pump.
Pistons	Aluminum cam ground with two compression and one oil ring.
Piston Pins	1-3/8 in. diameter, full floating.
Valves - Exhaust	Dual, stainless steel.
Valves - Intake	Dual, silichrome steel.
Temperature Control	Thermostat in coolant outlet.
Water Pump	Centrifugal, pre-lubricated.
Electrical System	DELCO, 12 volt, negative ground.
Approximate Engine Weight	Model D-118 - 1,116 lb. Model D-145 - 1,380 lb.

CLUTCH

Type	Foot operated.
Size	Model G-125 - 13 in. Models D-118 & D-145 - 14 in.

TRANSMISSION

Make & Type	VERSATILE, spur gear type.

No. of Speeds - Forward	Nine.
No. of Speeds - Reverse	Three.
Lubrication	Pressure lubricated.

DRIVELINES

Motor to Transmission - All Models	614-T-104-V51
Transmission to Axle - All Models	614-T-105-V51 614-T-106-V51 614-T-107-V51

AXLES

- All Models	(Front) 613-T-142-V91 (Rear) 613-T-141-V91

DIFFERENTIAL

- All Models	(Front) 612-T-102-V51 (Rear) 612-T-101-V51

HYDRAULICS

Cessna Pump was used in Models up to Serial #:

D-145 - Serial # 8634
D-118 - Serial # 4627
G-125 - Serial # 2260

Webster Pump is used on all Models after the above serial number.

PUMP

Make & Model	Cessna, Part No. 705-T-112-V51 Webster, Part No. 705-T-124-V51
Capacity at 2180 RPM	Cessna - 12.5 GPM @ 1750 psi Webster - 16.5 GPM @ 1750 psi

FILTERS

- All Models	Gresen Part No. 704-T-101-V51-A Element Part No. 704-T-116

CONTROL VALVE

Make	Gresen Three Spool Part No. 706-T-141-V51
Options	Third Spool Kit Part No. 12397 Vickers Two Spool Part No. 712-T-100-V51

STEERING

Pump Make & Model	Cessna Part No. 705-T-112-V51 Webster Part No. 705-T-124-V51
Capacity @ 2180 Pump RPM @ 3000 Engine RPM	Cessna - 12.5 GPM @ 1750 psi Webster - 16.5 GPM @ 1750 psi
Valve Make & Model	Chra-Lynn, Orbital Control
Releif Valve Make & Model	Gresen Part No. 708-T-101-V51-A, 1500 psi
Cylinder	3-1/2" Bore, 18 in. Stroke
Oil Cooler	Part No. 702-T-102
Filter Make & Model - All Models	Gresen, Part No. 704-T-101-V51-A Element, Part No. 704-T-116

ELECTRICAL

Alternator Make & Type	
- Model G-125	Autolite 12 Volt 40 amp., Negative Ground
- Models D-145 & D-118	Delco 12 Volt, 40 amp., Negative Ground
Regulators Number & Type	
- Model G-125	607-T-122-A, 12 Volt
- Models D-145 & D-118	607-T-124, 12 Volt
Starting Motor Make & Type	
- Model G-125	Autolite, 12 Volt
- Models D-145 & D-118	Delco, 12 Volt
Battery - Type	
- Model G-125	12 V91t, 70 amp. hr.
- Models D-145 & D-118	12 Volt, 204 amp. hr.

AIR CLEANER

Type & Model	
- Model G-125	601-T-152 Element 601-T-150-V51 Air Cleaner
- Model D-118	601-T-141 Element 601-T-138-V51 Air Cleaner
- Model D-145	601-T-125 Element 601-T-120-V51 Air Cleaner

COOLING SYSTEM

Thermostat Range	
- Model G-125	157° to 187° F.
- Models D-145 & D-118	175° to 202° F.
Radiator Cap	7 lb. full pressure cap

BRAKES

Type & Location	
- All Models	Hydraulically operated, located on rear driveline
Parking Brake Type	Mechanically Operated

APPROXIMATE CAPACITIES

Cooling System	**All quantities are Imperial measure.**	
- Model G-125	25 qt.	
- Model D-118	29 qt.	
- Model D-145	34 qt.	
Engine Oil		
- Model G-125	7 qt. with filter.	
- Model D-118	20 qt. with filter.	
- Model D-145	22 qt. with filter.	
Transmission	6 gal. with filter.	
Implement Hydraulics	6 gal. with filter.	
FINAL DRIVE	Differential	Planetary
- All Models	4 gal.	7 pt.
FUEL TANKS (Two)	45 Imp. Gal. Each	

APPROXIMATE WEIGHTS—TRACTOR

Model G-125	11,000 lb.
Model D-118	11,000 lb.
Model D-145	14,300 lb.
Cab	600 lb.
Dual Wheels	1,000 lb.

ENGINES

FORD

For warranty service on the FORD gas engine, see your nearest FORD INDUSTRIAL DEALER or refer to your FORD Owner's and Operator's Manual.

CUMMINS

For service on the diesel engines from the fan to the flywheel, contact your nearest Versatile or Cummins dealer. However, if starting is a problem, before you call your CUMMINS distributor make certain the following items have been checked.

1. Fuel supply.
   (a) Check fuel level in tanks.
   (b) Check condition of fuel filter and filter "O" ring.
   (c) Check fuel screen on top of the pump. See Figure A below.

2. Check electrical shut-down solenoid. There should be a definite click when switch is turned on. A manual over-ride knob provided on the rear end of the electric shut-down valve allows the valve to be opened in case of electric power failure. To open the valve, turn the knob in fully in a clockwise direction. See Figure A.
   CAUTION: To prevent cranking motor damage do not crank the engine more than 30 seconds continuously. If the engine does not fire within the first 30 seconds, wait two minutes before recranking.

3. Check air inlet system to ensure an adequate supply of air to the engine.

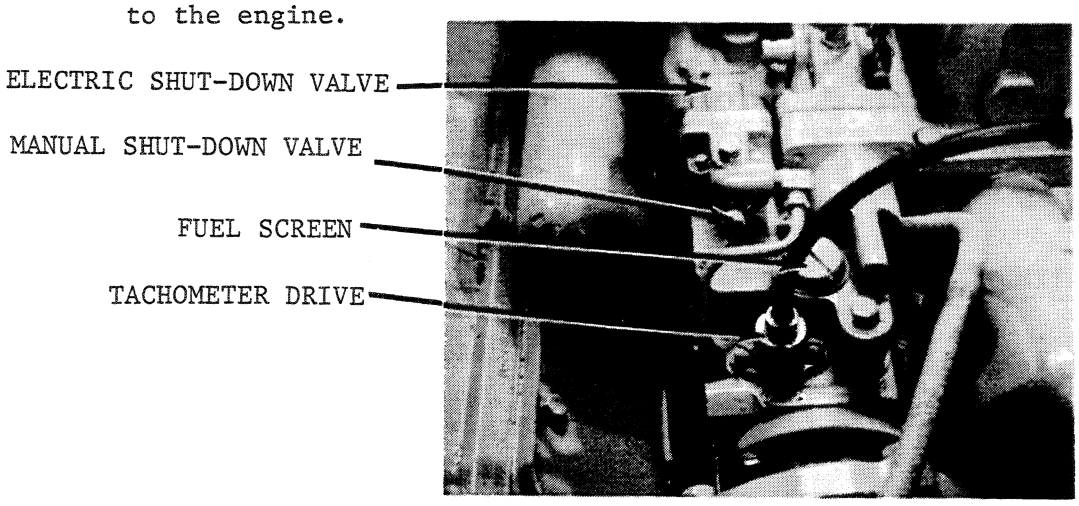


Fig. A

FUEL AND AIR SYSTEM

The fuel system is designed to store fuel and to deliver it to the engine in the form of vapor mixed with air. As the power output of an engine is dependent upon the fuel-air ratio, it is important that these systems be kept clean and operating. Dirty filters or restrictions in either fuel or air systems will cause smoky exhaust, high exhaust temperatures and loss of power.

FUEL TANKS

The two fuel tanks are mounted on the left hand and right hand of the tractor and are connected by a hose at the bottom of each tank. Each tank has a drain cock on the bottom for draining fuel or condensation.

The tanks may be removed for cleaning and and repair as follows:

1. Remove front and rear hand rails.
2. Disconnect cross-over fuel line, fuel suction line, pipe tee and fuel return line.
3. Remove three 3/8" x 1" bolts connecting front of tank and front fender.
4. Remove five 1/2" x 1" bolts from each corner of fuel tank.
5. Remove tank.

When reassembling the fuel tanks, reverse the above procedure.

DIESEL FUEL FILTER

The diesel fuel filter is mounted on a bracket attached to the left hand side of the engine hood. This is a spin-on type filter and must be discarded when it becomes plugged. Replace only with a proper filter made specifically for Cummins engines. Air leaks can develope around the O-rings on the inlet and outlet fittings on the filter. Thic can cause engine to miss, run unevenly, lose power, and surge. This can be remedied by installing a 1/8" thick O-ring under the lock nut on the inlet and outlet fittings on the filter base instead of the 3/32" thick O-ring which are originally installed. Before installing a new filter, always fill the filter with diesel fuel.

GASOLINE FILTER

The gasoline filter on the Model G-125 before Serial No. 2101 is located under the fuel pump. This is a replaceable element type.

After Serial No. 2102 an in-line filter is used. This has a replaceable element.

AIR CLEANER

Donaldson dry-type air cleaners are used on all units. These units are efficient if properly serviced.

TRACTOR		MODEL USED
G-125	Unit	601-T-150-V51
	Element	601-T-152
D-118	Unit	601-T-138-V51
	Element	601-T-141
D-145	Unit	601-T-120-V51
	Element	601-T-125

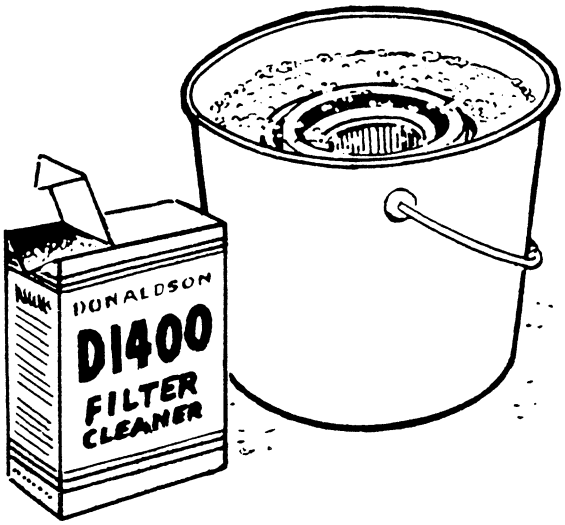
The following instructions are to be used for service and maintenance of the air cleaners.

AIR CLEANER

USED ON MODEL G-125

SERVICE PROCEDURE

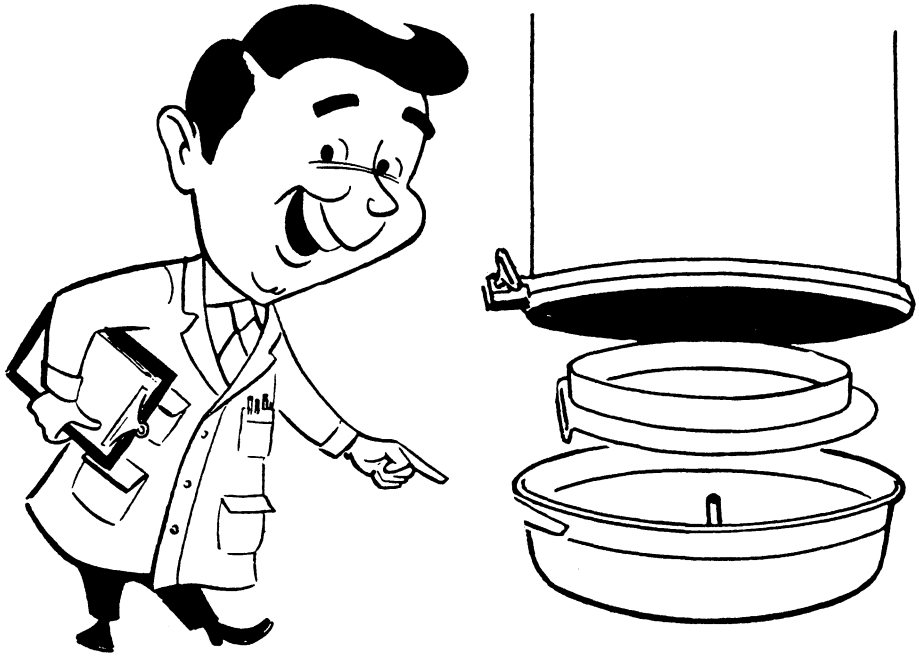
Direct dry, clean air up and down pleats on the clean air side of the Duralife filter. Caution: Air pressure at nozzle must not exceed 100 PSI. Maintain reasonable distance between nozzle and Duralife filter.



To wash filter, *especially effective for oily and soot laden filters,* use Donaldson D1400 Filter Cleaner. Proportions are 2 oz. of Cleaner to 1 gallon of water. For best mixing results use small amount of cool tap water then add to warm (70°-100°F.) water to give proper proportion. The warmer (100°F.) the solution the better the cleaning. Soak for 15 minutes. Rinse the filter thoroughly with clean water from hose (maximum pressure 40 PSI). Air dry completely before reusing.

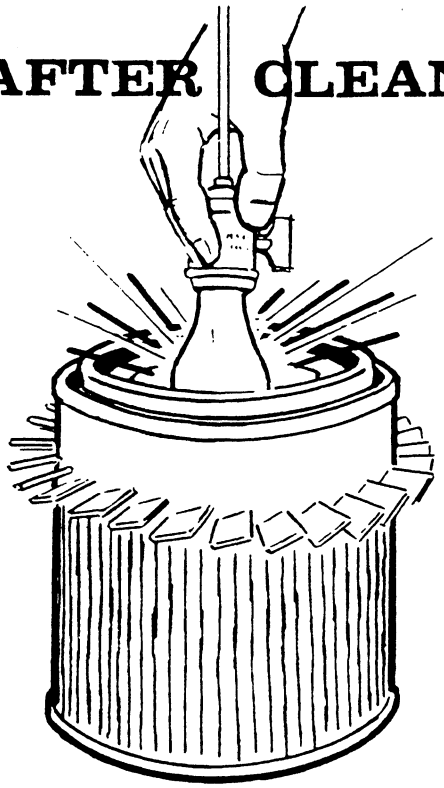
IMPORTANT:

Pre-cleaning fins are NOT removable!



Empty dust cup daily or more often if required. Dust level should not be allowed to build up to less than one-half inch from slot in dust cup baffle. Remove foreign material such as leaves from around filter and tighten wing bolt if necessary.

AFTER CLEANING AND DRYING



After the element has been dried, (a fan or air draft may be used, but do not heat element to hasten drying), inspect element for damage by placing a bright light inside the filter. Thin spots, pin holes or the slightest rupture will render the cartridge unfit for further use.

Re-assemble the air cleaner in reverse order – inspecting all gaskets and replacing any that are questionable.
If air cleaner is mounted in a horizontal position, be sure dust cup arrows point up.

CAUTION:
DO NOT USE OIL IN DUST CUP

Inspect and tighten all air cleaner induction system connections.

FILTER SHOULD BE REPLACED AFTER 6 CLEANINGS OR ANNUALLY

INSPECTION CHECK-OFF LIST

At every air cleaner service inspect the following for damage or leaks. Take the necessary corrective measures.

- Dust cup retainer damage
- Dust cup (sealing edge damage)
- Filter gasket washer
- Filter gasket (part of filter)
- Filter leaks, damage
- Connections between air cleaner and engine

NOTE: Filter leaks are indicated by: (1) Areas of concentrated dust on clean side of filter; (2) Light shining through holes when light bulb is held inside filter.

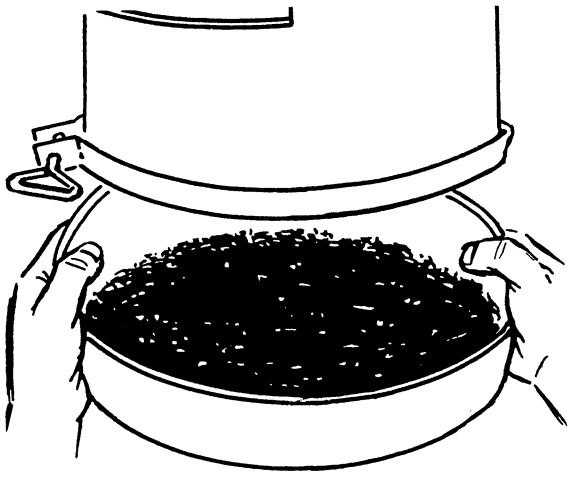
The air cleaner should be inspected constantly for leaks. A damaged air cleaner can seriously affect the performance and life of the engine. The following simple service steps are easily made while the engine is being serviced in the field.

The simple service steps are as follows:

1. Watch all connections for mechanical tightness. Be sure cleaner outlet pipe is not fractured.
2. If cleaner has been dented or damaged, check all connections immediately.
3. In case of leakage and if adjustment does not correct the trouble, replace necessary parts or gaskets.

AIR CLEANERS

USED ON MODELS D-118 & D-145



Empty dust cup daily or more often if required. Dust level should not be allowed to build up to less than one inch from bottom of Donaclone tubes.

Direct dry, clean air up and down the pleats on the clean air side of Duralife filter. Caution — air pressure at nozzle must not exceed 100 PSI. Maintain reasonable distance between nozzle and Duralife filter.

FILTER SHOULD BE REPLACED AFTER 6 CLEANINGS OR ANNUALLY

CAUTION:

DO NOT USE OIL IN DUST CUP.

BE SURE DUST CUP FITS AIR TIGHT TO LOWER BODY.

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to download the complete manual.

Thank you so much for reading

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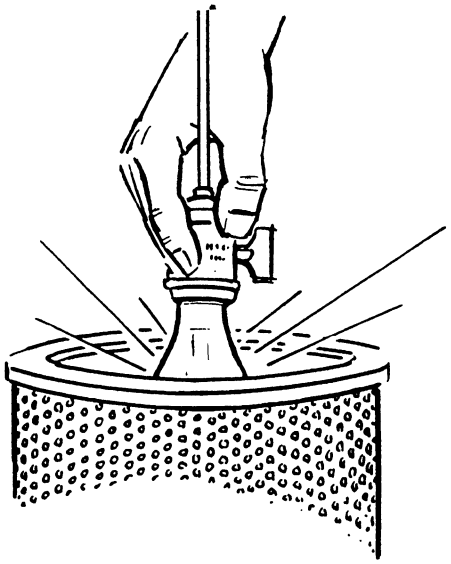
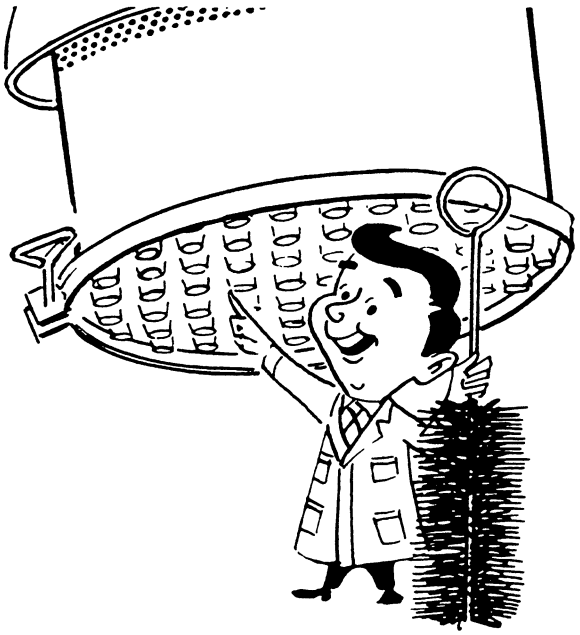


After the element has been dried (a fan or air draft may be used, but do not heat element to hasten drying), inspect element for damage by placing a bright light inside the filter. Thin spots, pin holes or the slightest rupture will render the cartridge unfit for further use.

Inner cover may stick to the element due to temperature change. It is not necessary to remove inner cover for servicing element. If however, element is to be replaced, be sure to re-
inner cover. DO NOT PRY the nner cover off the element. Snug fitting inner cover may be removed easily at room temperature. (Min. 60° F.)



For minimum vehicle down time, replace dirty filter with a new or cleaned Duralife filter. Service later as indicated in the following steps. If element is to be serviced for immediate re-use, re-install outer cover to protect induction system while cleaning element.

Light dust plugging of tubes can be removed with a stiff fibre brush. If heavy plugging with fibrous material is evident, remove lower body section for cleaning with compressed air or water not exceeding 150°F.