

WORKSHOP MANUAL

**for Assembling, Disassembling and Repairing
the Tractors**

ZETOR

8011-8045

12011-12045

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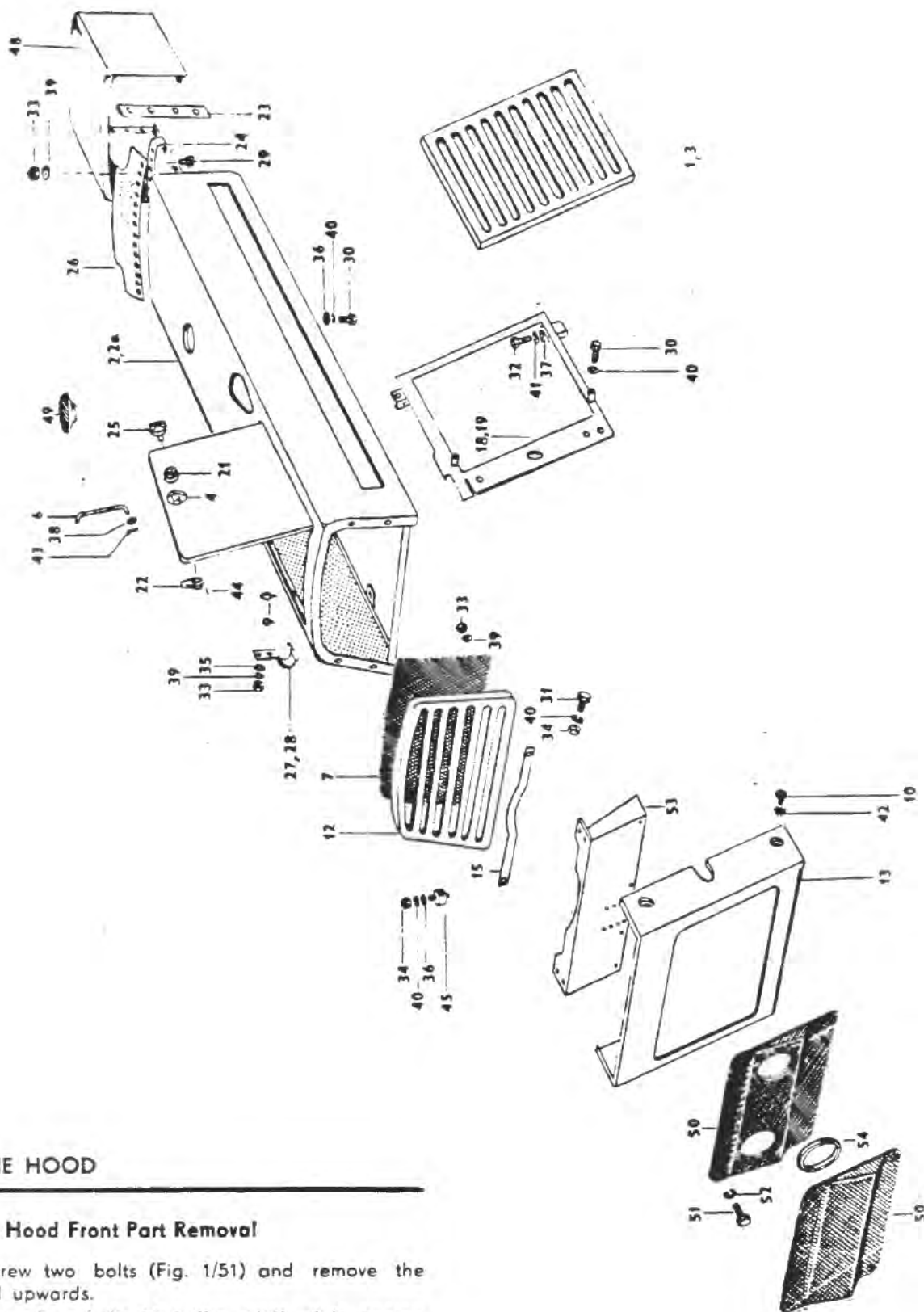
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ENGINE HOOD

Engine Hood Front Part Removal

1. Unscrew two bolts (Fig. 1/51) and remove the hood upwards.
Remove four bolts M 8 (fig. 1/10), slide engine hood front part slightly aside and disconnect headlamp cables from the terminal board.
2. Remove engine hood front part (Fig. 1/13) from the tractor.

Reassembly shall be carried out in the reverse way.

Fig. 1

in its bottom part with two opposite pressed-in recesses preventing the piston from falling out. After inserting the spring top cup (Fig. 9/9), the piston spring (Fig. 9/3) and the spring bottom cup (Fig. 9/22), the whole injection unit is closed. The complete unit is then installed in the bore in which a lifter with washers has been inserted before and tightened with nuts (Fig. 9/25). Injection pump fuel port is protected from erosion effects by means of a protecting bush (Fig. 9/19). Governing rod (Fig. 9/16) is located in antifriction bearings in the injection pump body, its toothing corresponding with that of the regulating bush (Fig. 9/2). Injection pump fuel supply is ensured by a coupling (Fig. 9/34) being fixed to the spigots (Fig. 9/15) by means of a hollow bolt (Fig. 9/32).

Note: To change or fill oil into the injection pump and governor housing a plug (Fig. 9/59) is provided equipped with a rubber sealing ring (Fig. 9/37). Oil level in the housing is indicated by means of a hollow bolt (Fig. 9/57) together with a connector. To drain old oil from the injection pump housing a plug on its bottom must be used (Fig. 9/46), on the governor the plug (Fig. 10/36). Conventional engine oil is used to lubricate injection pump and governor.

Governor Description

RV 1M governor is a new type of a mechanical output governor provided with a sprung rotor. The governor is also equipped with an automatic starting device located in the governor housing. Owing to the fact that both maximum and idling speeds are regulated by an only spring, a possible delay in the regulation between idle and maximum speed falls off. Governor hub (Fig. 10/20) is fixed to the injection pump camshaft by means of a nut (Fig. 10/43). There is a three leaf spring slid on the governor hub corresponding by its shape with the carrying hub dog as well as with the carrying weight carrier dog. The weight carrier locking (Fig. 10/22) on the hub is provided with a safety ring (Fig. 10/55). Rocking weights (Fig. 10/18) are fixed to the carrier (Fig. 10/22) by means of pins (Fig. 10/56). The movement of weights (Fig. 10/18) is transmitted by rollers (Fig. 10/67a) on a bushing (Fig. 10/21) slidably mounted on the carrier. The centrifugal movement of the governor weights is thus changed into an axial one of the bushing (Fig. 10/21) and via a central (thrust) pin (Fig. 10/38) it is transmitted onto a dual lever (Fig. 10/16). Constant contact of individual elements, i. e. weight rollers (Fig. 10/67a) and the bushing (Fig. 10/21) of level thrust central pin (Fig. 10/38) as well as dual lever (Fig. 10/16) and corrector pin is ensured by the lever pressure (Fig. 10/16). The lever with bushing (Fig. 10/2) is located on the pin (Fig. 10/40) and drawn towards the injection pump by means of a spring (Fig. 10/3) via a tie rod (Fig. 10/4) and a fork (Fig. 10/5) which is at the same time connected with the eccentric shaft. At the moment when the centrifugal force of rotating weights decreases as a result

of a decreased speed, the lever (Fig. 10/2) is moved by means of the spring (Fig. 10/3) towards the injection pump and thus also the lever (dual lever) (Fig. 10/16) connected by means of the tie rod (Fig. 10/15) with the governing rod moves in the higher fuel delivery direction and engine speed increases again. Regulating spring (Fig. 10/3) replaces on this model all springs being fitted on other governor models onto the weights. Spring top end is fixed in a lock pin (Fig. 10/37) and its prestress is performed by means of an adjustable hollow bolt (Fig. 10/33). The same procedure of displacing individual levers is carried out during the movement of the eccentric shaft (Fig. 10/9).

Automatic starting device consists of a spring (Fig. 10/24) connecting an adapter and a lever (Fig. 10/28). When starting the engine this device enables the governor rod lever to be shifted in the position for increased fuel delivery. At a given rotor speed the above device is put at once out of operation.

Flange-type Injection Pump Removal from the Crankcase

Special tooling: Spanner for injection pump
flange II — 80.801.140
Knocker XII — 80.801.157

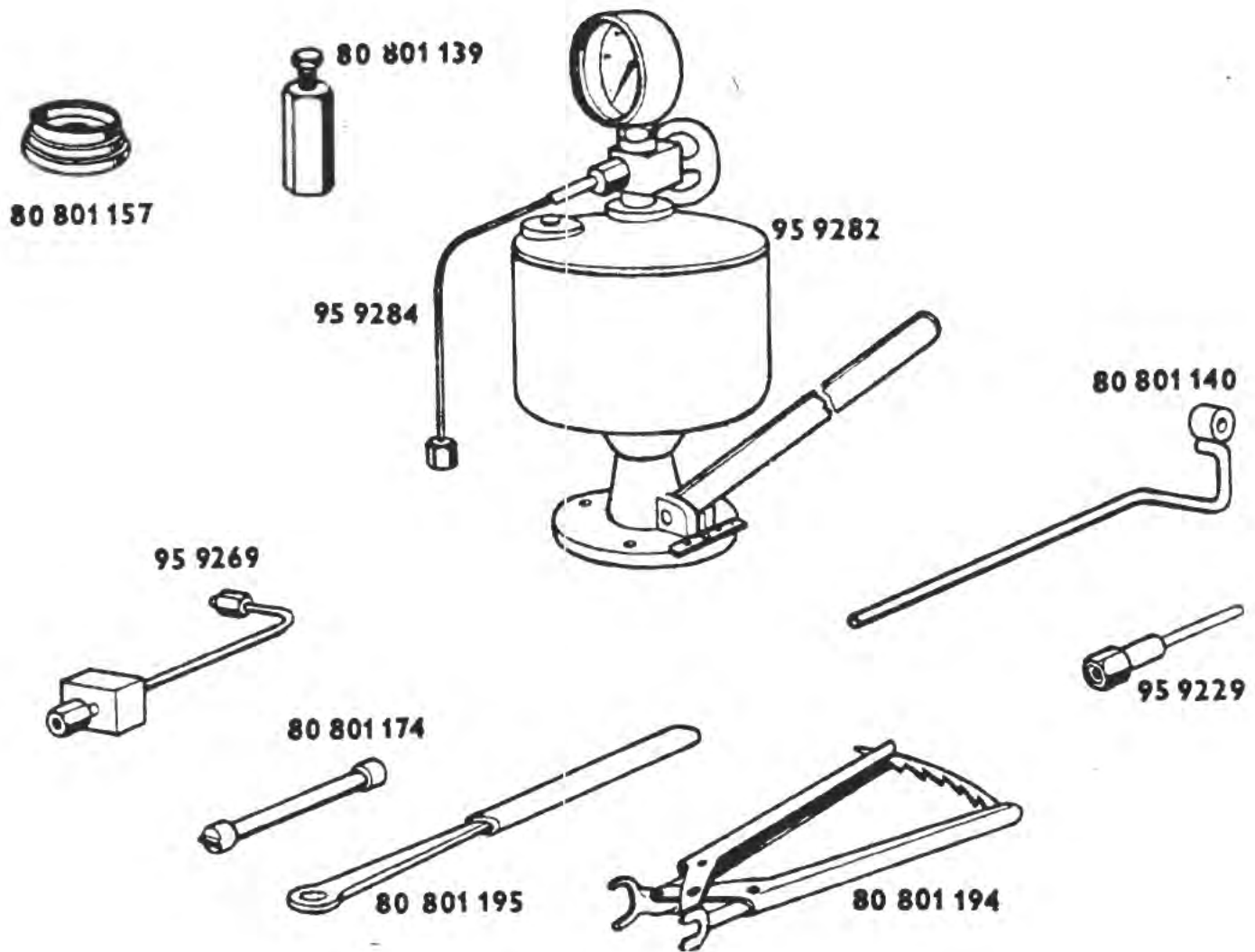
1. Close fuel supply.
2. Disconnect intake fuel tube (Fig. 11/44) from the fuel tank and the delivery pump.
3. Separate the pipe from the delivery pump and the double filter as well as the supply line from the double filter to the injection pump.
4. Loosen cap nuts on injectors (Fig. 11/12) and unscrew cap nuts.
5. Disconnect the tie rod of the throttle control from the foot control lever ball pin.
6. Remove three nuts M 10 (Fig. 11/25) from stud bolts by means of a special socket spanner. Slide off the flange injection pump from the dog clutch rearwards.

Installing and Adjusting the Injection Pump

Special tooling: Spanner for injection pump
flange II — 80.801.140
Capillary tube — 95 9229

If no replacement of pistons and cylinders has been carried out on a removed injection pump, install the injection pump on the engine in such a way that you fix it according to the marks stamped in its flange and the engine casing. When installing a new injection pump or a pump with replaced injection elements (pistons and cylinders), it is necessary to set up the angle of advanced fuel injection. The angle is $24^{\circ} \pm 2^{\circ}$ before T.D.C. and shall be set up in the following way:

1. Install the injection pump without high pressure pipes on engine block and tighten it slightly by means of fixing nuts to the crankcase.
2. Deaerate the tractor fuel system.



3. Screw a capillary tube on the injection pipe first cylinder pipe union branch and fill it with fuel (a drip tube cannot be used).
4. Set up the first cylinder piston in the position corresponding to $24^{\circ}-2^{\circ}$ before T.D.C. of the compression stroke. This adjustment shall be carried out by means of a pin which is to be removed from the crankcase and pushed through a hole in the oil vat into the flywheel first hole in the sense of engine rotation. The second hole in the sense of engine rotation serves for the piston adjustment in T.D.C.
5. Turn the injection pump body with its top part towards the engine casing (conformably to the sense of engine rotation). Remove stop plug of the governor rod on injection pump face. Governor rod shall be fitted on the injection pump face and fixed in this position.
6. Turn the injection pump in the reverse sense till the moment when the fuel column moves in the capillary tube. Tighten three nuts in this position fixing the injection pump to the crankcase. Install the stop plug of the governor rod.
7. Stamp a mark on the injection pump flange opposite to the mark on the engine casing.

Note: Check the fuel injection start adjustment in the following way:

- a) Shift out the pin from the flywheel hole so that the flywheel may be turned.
- b) Turn the flywheel through 10° to 15° against the sense of the engine rotation (turn the flywheel by means of a suitable bar through the hole on the RH side of the crankcase which is closed with a rubber cap).
- c) Turn slowly the flywheel in the sense of the engine rotation till the moment of the fuel ejection start. If this fuel ejection start corresponds with the flywheel position in which it is possible to insert the checking pin into the flywheel hole ($24^{\circ}-2^{\circ}$ before TDC), then fuel injection start has been adjusted correctly.
- d) Prior to install injection pump onto the engine, fit the fork (Fig. 11/18) and check the position „STOP” of the regulator lever (Fig. 16).