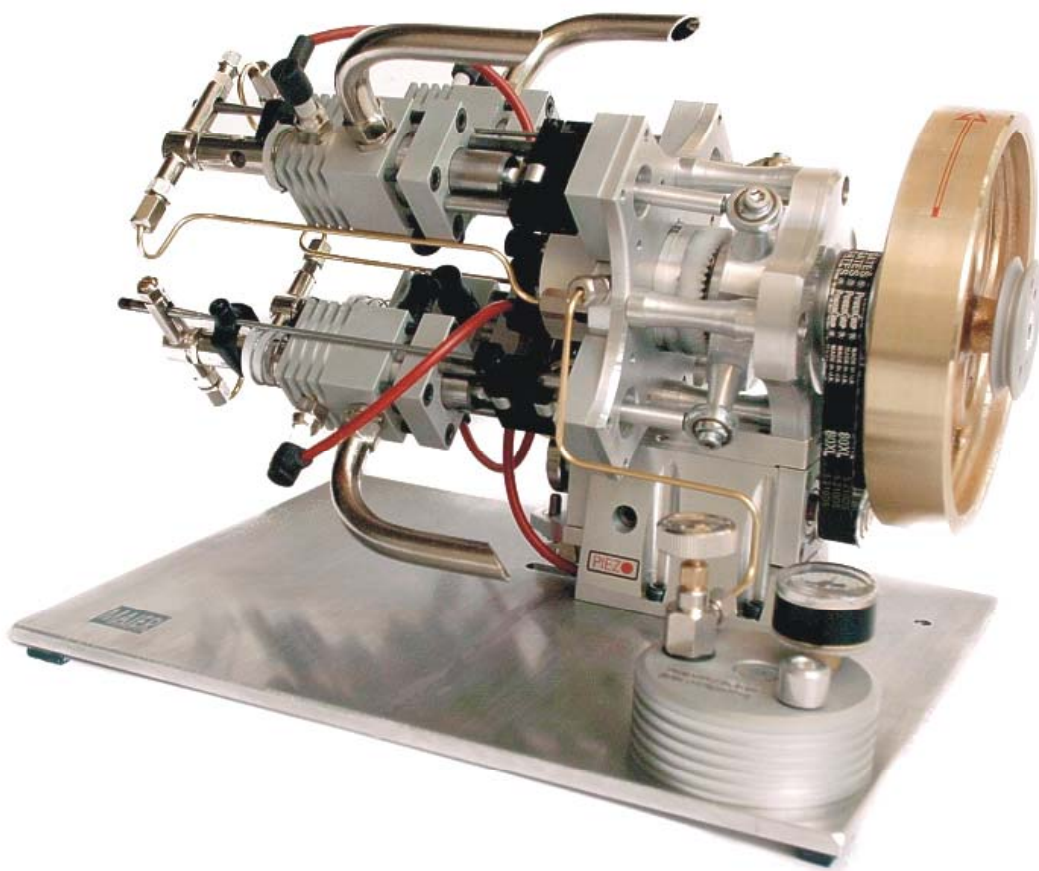


GASENGINE TA4

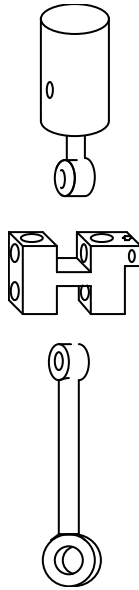


Assembly plan
and adjustment



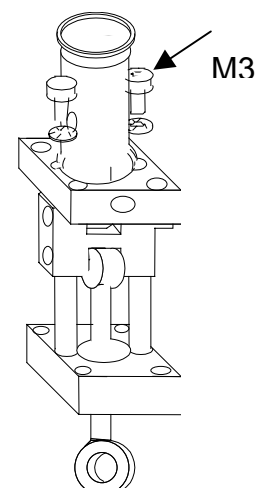
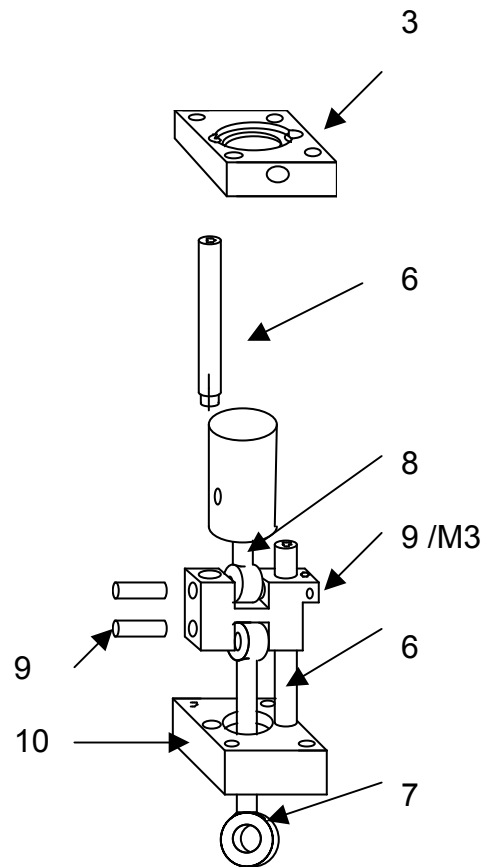
Assembly plan

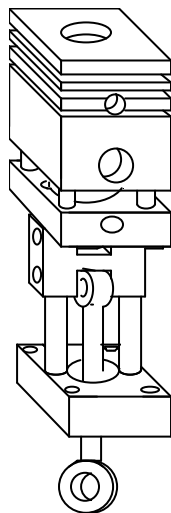
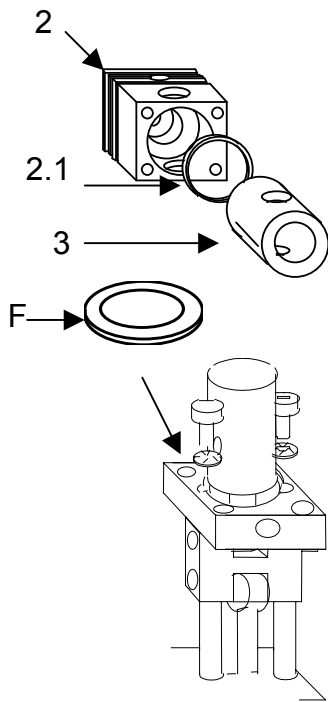
The components are in part assembled as modules.



1. Mounting the crosshead

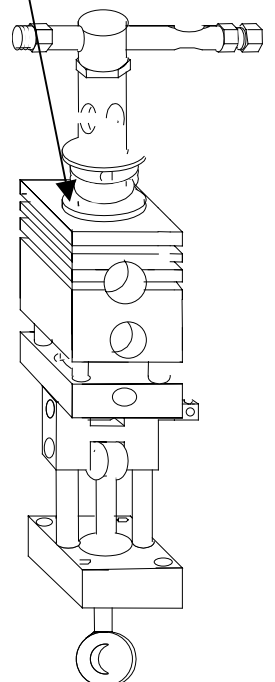
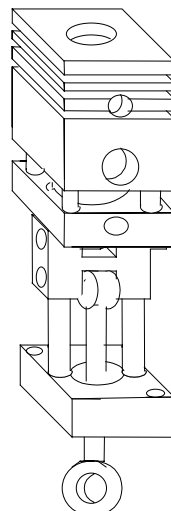
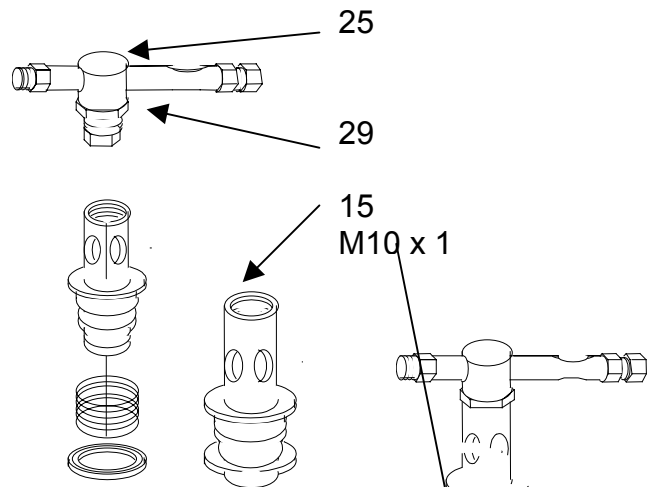
- 1.1 Screw the right-hand guide rod (6) with M4 thread firmly to the retaining plate (10).
- 1.2 Insert the crosshead (9) in the guide rod (6), ensuring that the connection M3 is on the right (see drawing)
- 1.3 Suspend the connecting rod (7) in the crosshead with the parallel pin (9) and piston rod (8).
- 1.4 Push the second guide rod (6) through the crosshead and screw firmly to the retaining plate
- 1.5 Screw the cylinder plate (3) with the M3 screws and circlips to the guide rods, ensuring that the piston enters the central hole. The crosshead should be on top on the cylinder plate during screwing.
- 1.6 Push the crosshead downwards towards the retaining plate. Loosen the retaining plate M3 screws again and then tighten them. The crosshead should move slightly to and fro. Then tighten all screws.





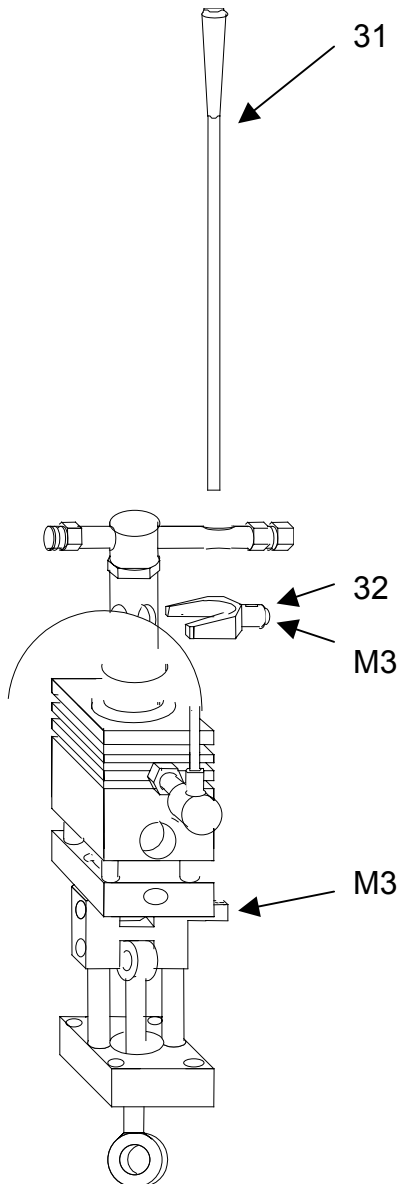
2. Mounting the cylinder unit

- 2.1 Lay the Teflon seal (2.1) in the cylinder housing (2) (can already be in the housing)
- 2.2 Insert the cylinder (3) in the cylinder housing, ensure that the exhaust openings correspond (spark plug hole at front).
- 2.3 The cylinder unit is now mounted on the cylinder plate.
(M4x20 screws)
Lay the felt ring (F) prior to this in the cylinder plate for lubrication.
- 2.4 Insert the piston in the cylinder and tighten the screws diagonally
- 2.5 Check again that the motor unit moves easily and relieve any tension if necessary.



3. Mounting the carburettor unit

Screw the carburettor pipe (15) and mounted air valve into the cylinder housing and tighten firmly (M10x1), pushing a pin or screwdriver through the opening during this.
Screw the gas valve (25) onto the carburettor pipe and tighten with the locknut (29).



4 Mounting the valve control

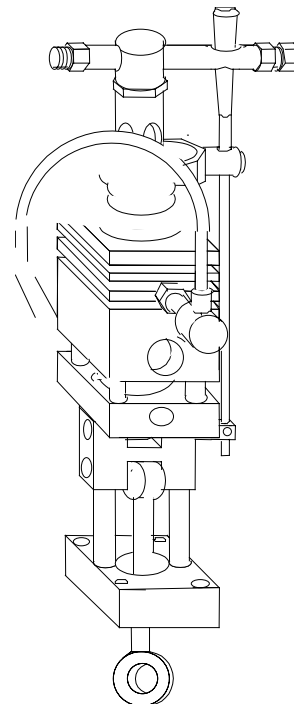
- 4.1 Screw the M3 stud bolt into the threaded hole in the crosshead.
- 4.2 Insert the control rod with the taper (31) through the hole in the gas valve.
- 4.3 Push the fork (32) onto the control rod.

4.4 Secure the control rod in the crosshead with the M3 screw.

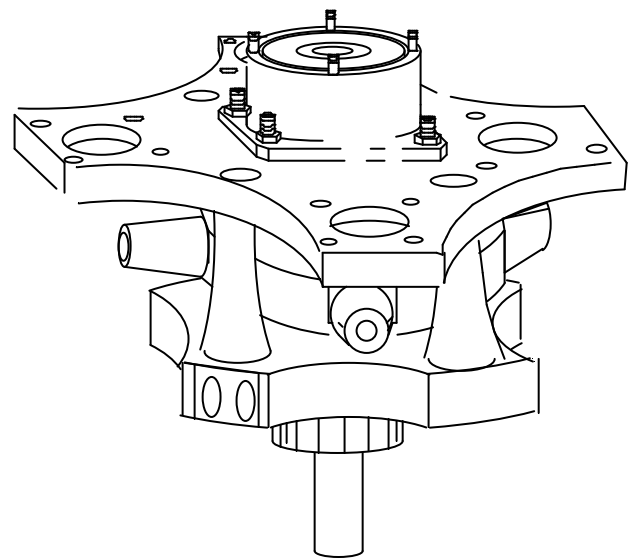
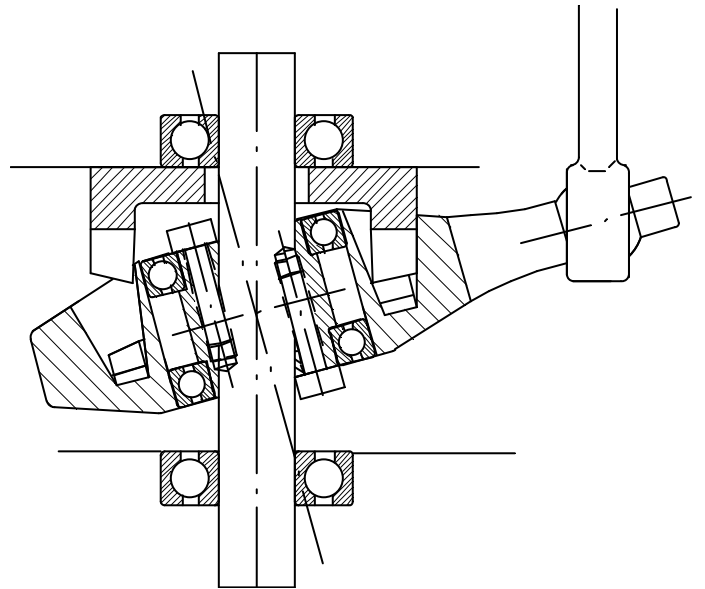
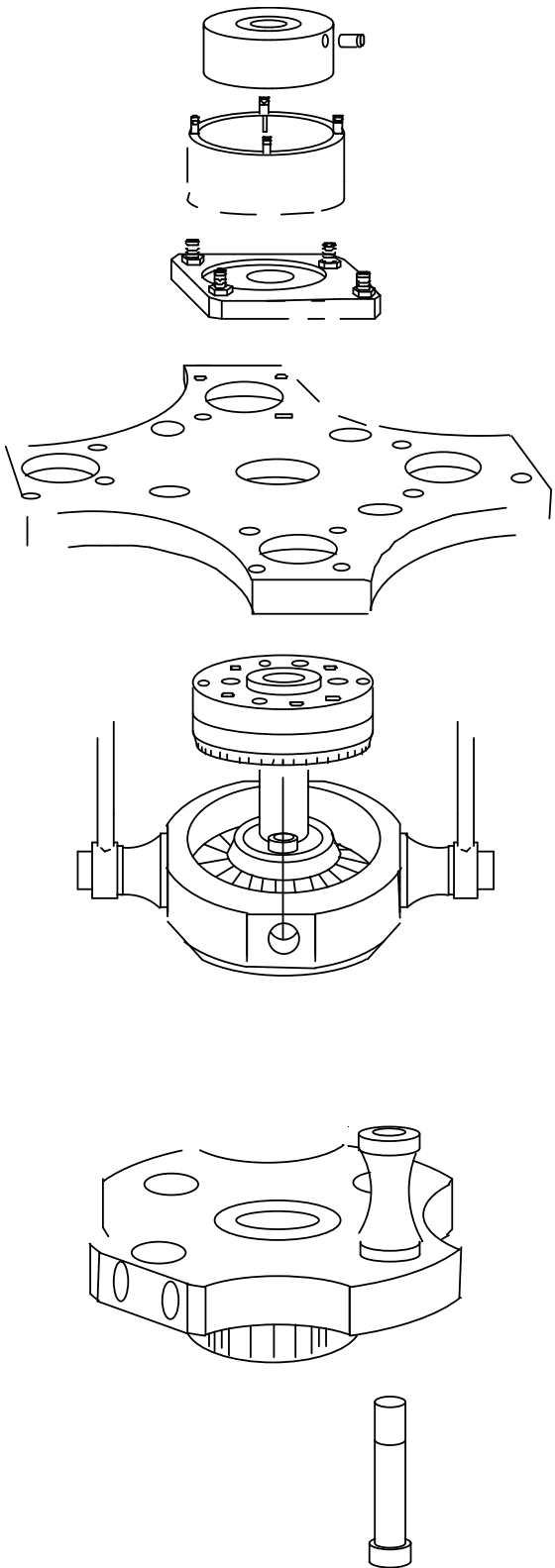
4.5 Secure the fork on the control rod (M3) so that the valve spring is 3/4 compressed when the crank shaft is at the lower dead point.

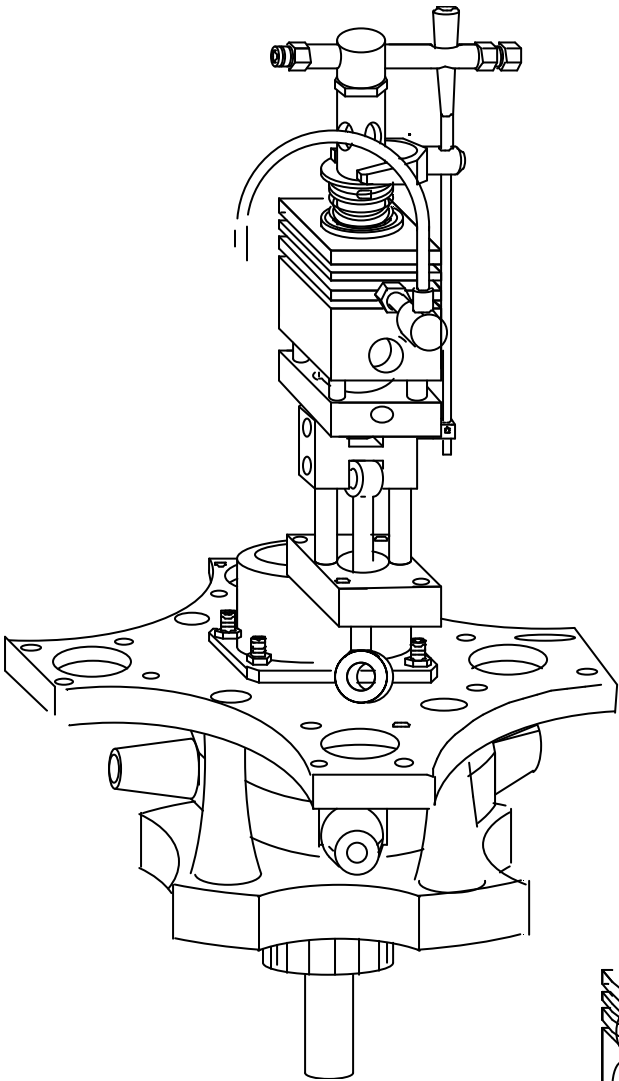
(Approx. 38 mm from the top end of the control rod.)

Mount all 4 motors in the same manner.

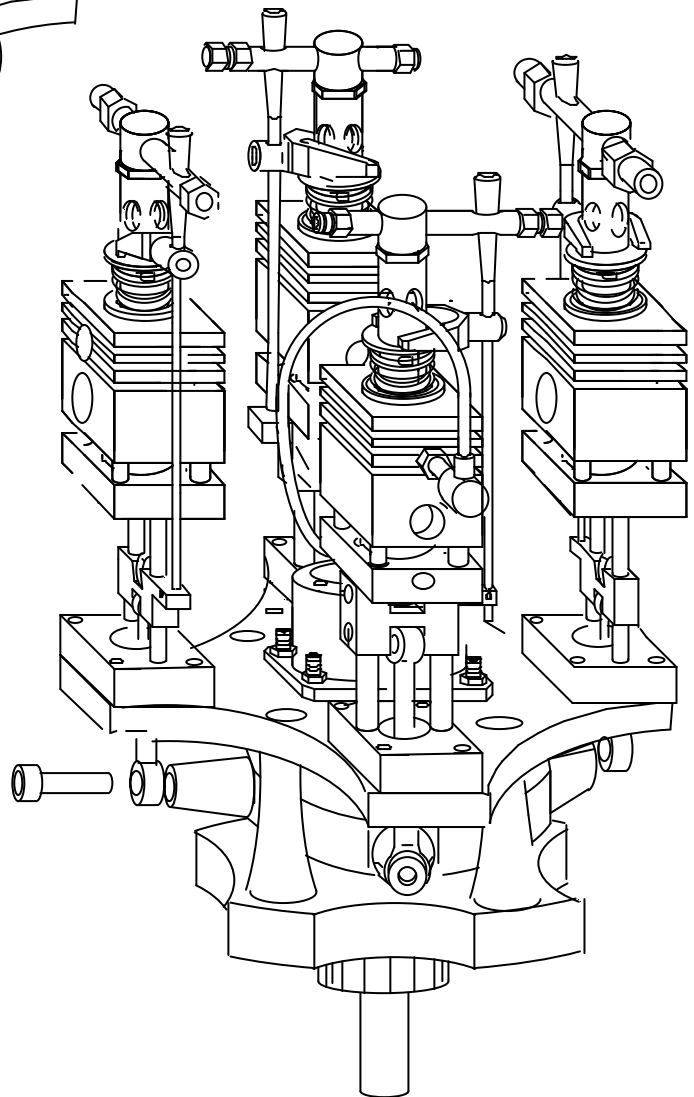


5. Mounting of the oscillating gear for the motor is completed.



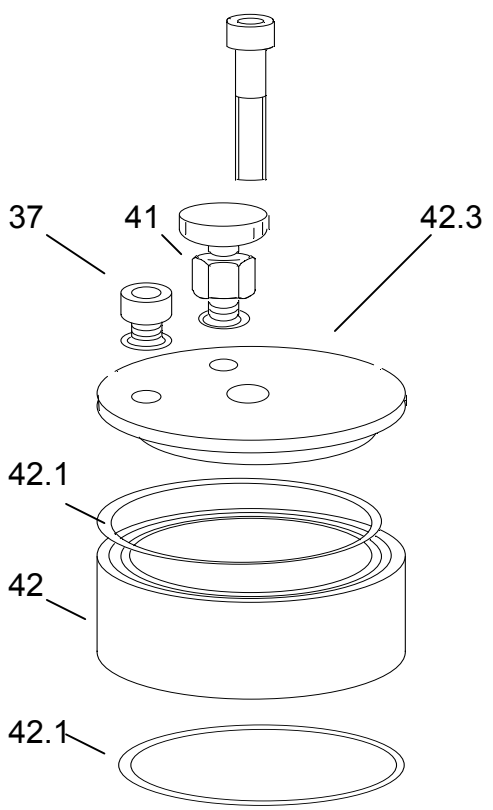
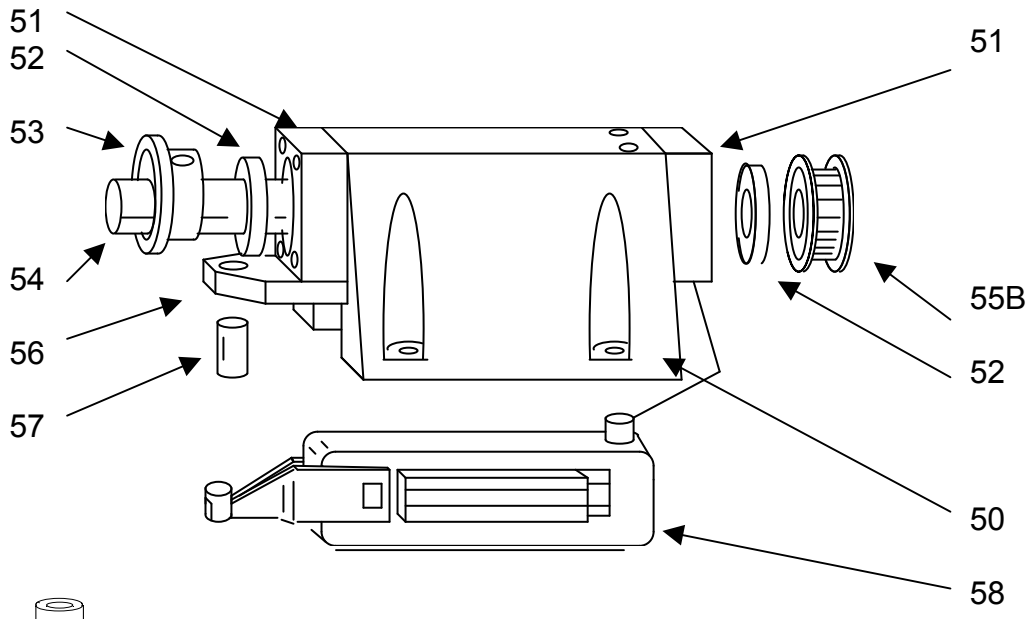
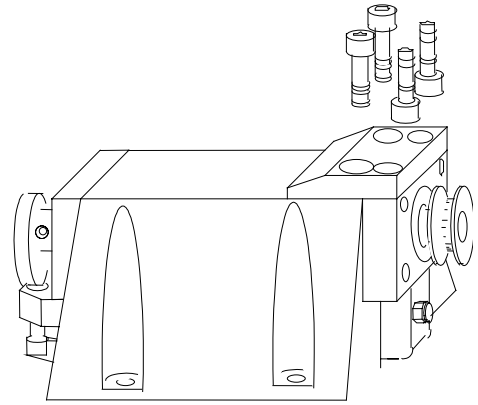


6. Mount the individual motors on the oscillating gear base plate (see drawing).



7. Mounting the pedestal (50)

- 7.1 Screw the bearing plates (51) to the side of the pedestal.
- 7.2 Mount the ball bearing (52), cam (53) and ignition shaft (54).
- 7.3 Secure the V-belt wheel (55B) with the screw.
- 7.4 Mount the pin plate (56).
- 7.5 Fit the pin (57) for the Piezo ignition (58).
- 7.6 Insert the Piezo ignition it the pedestal slot and screw the pedestal to the base plate (59).

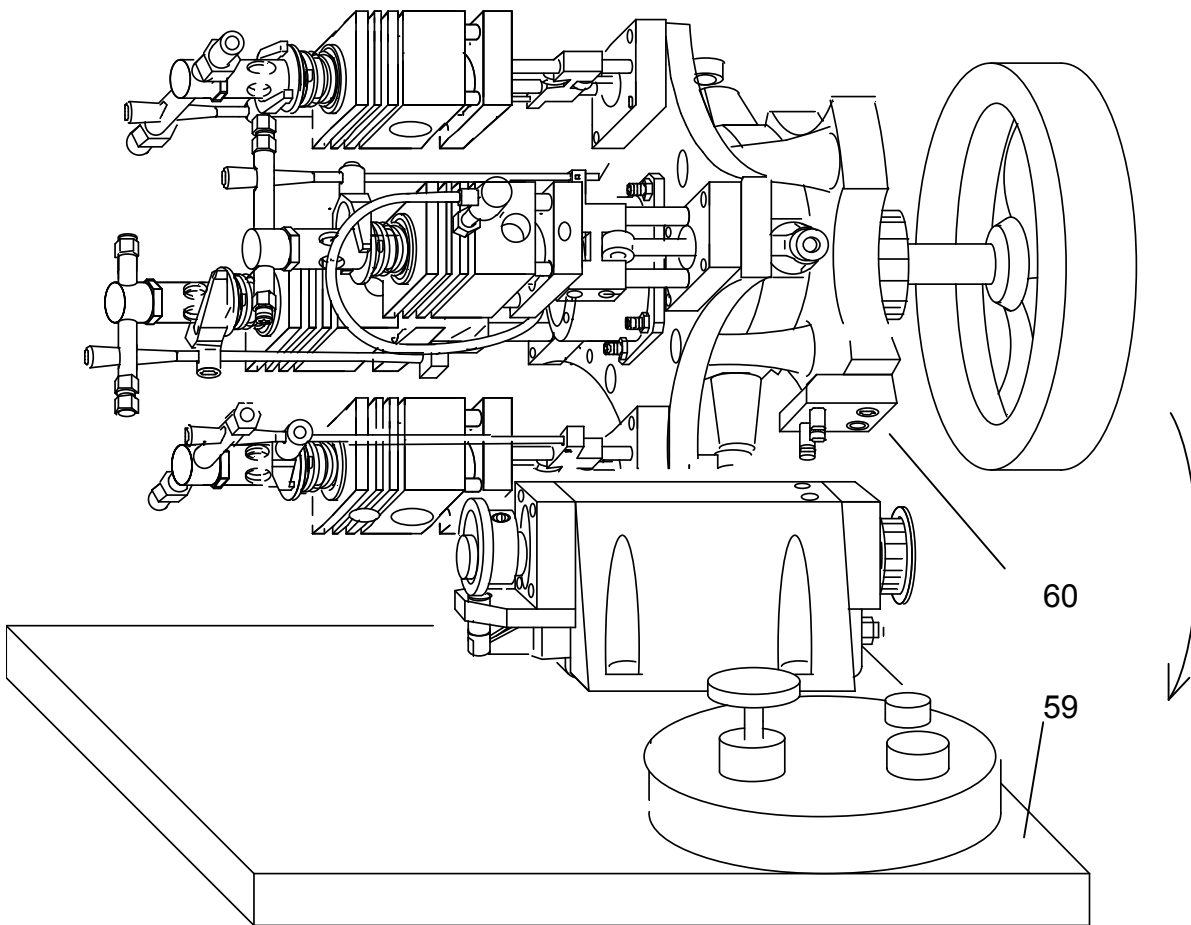


8. Mounting the tank

- 8.1 Insert seals in the grooves on the tank ring (42)
- 8.2 Screw the tank cap (42.3) and tank ring to the base plate with the M6 screw and seal rings (42.1)
- 8.3 Screw the gas filling valve, (37) gas control valve (41) and pressure gauge with seals into the tank cap, noting the position of the gas connection (the tank cap can also be turned to adjust the connection).
- 8.4 Check the tank for leaks.

9. Mounting the motor on the pedestal.

- 9.1 Screw the connection plate (60) firmly to the motor.
- 9.2 Position the motor with the connection plate in the slot on the top of the pedestal.
- 9.3 Fit the V-belt around the gear wheel on the motor shaft.
- 9.4 The motor should be tilted downwards on the flywheel side to fit the V-belt around the gear wheel on the ignition shaft.
- 9.5 The motor can be secured to the pedestal with the two screws after the V-belt has been fitted.



10. Mounting the gas lines

- 10.1 Mount the preassembled gas lines with union nuts (36) and seals on the distributor (49) and gas valves (28).
- 10.2 Connect the gas line to the tank and distributor.

11. Adjustments

During general adjustment of the individual cylinders, it is advantageous to unscrew the 4 cylinder connecting rods from the oscillating gear. (70)

The pistons of individual cylinders can now be moved in and out of the cylinder by hand.

Adjusting the carburettor.

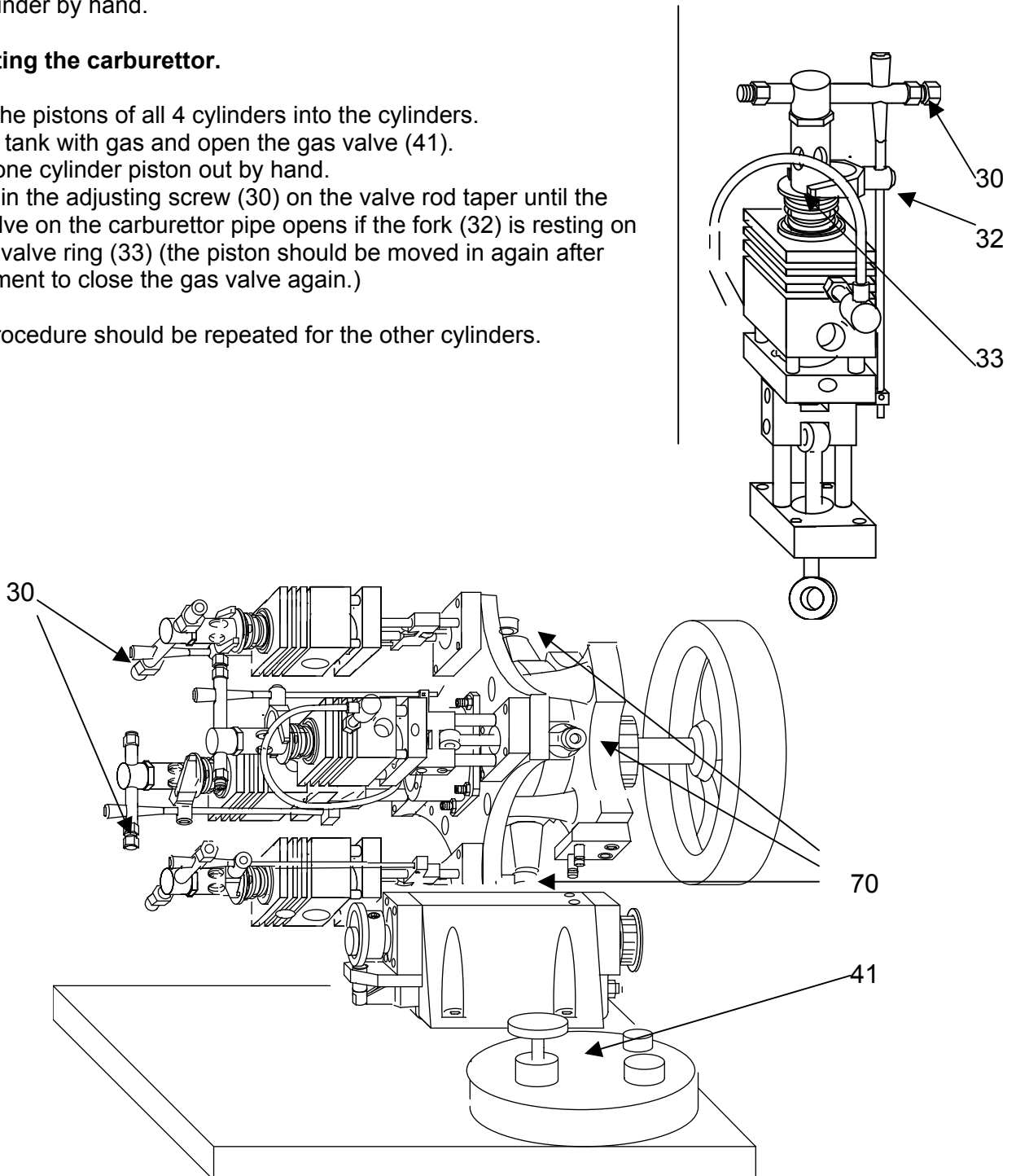
Move the pistons of all 4 cylinders into the cylinders.

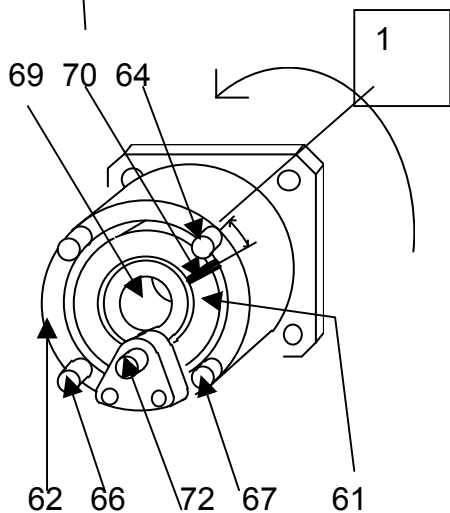
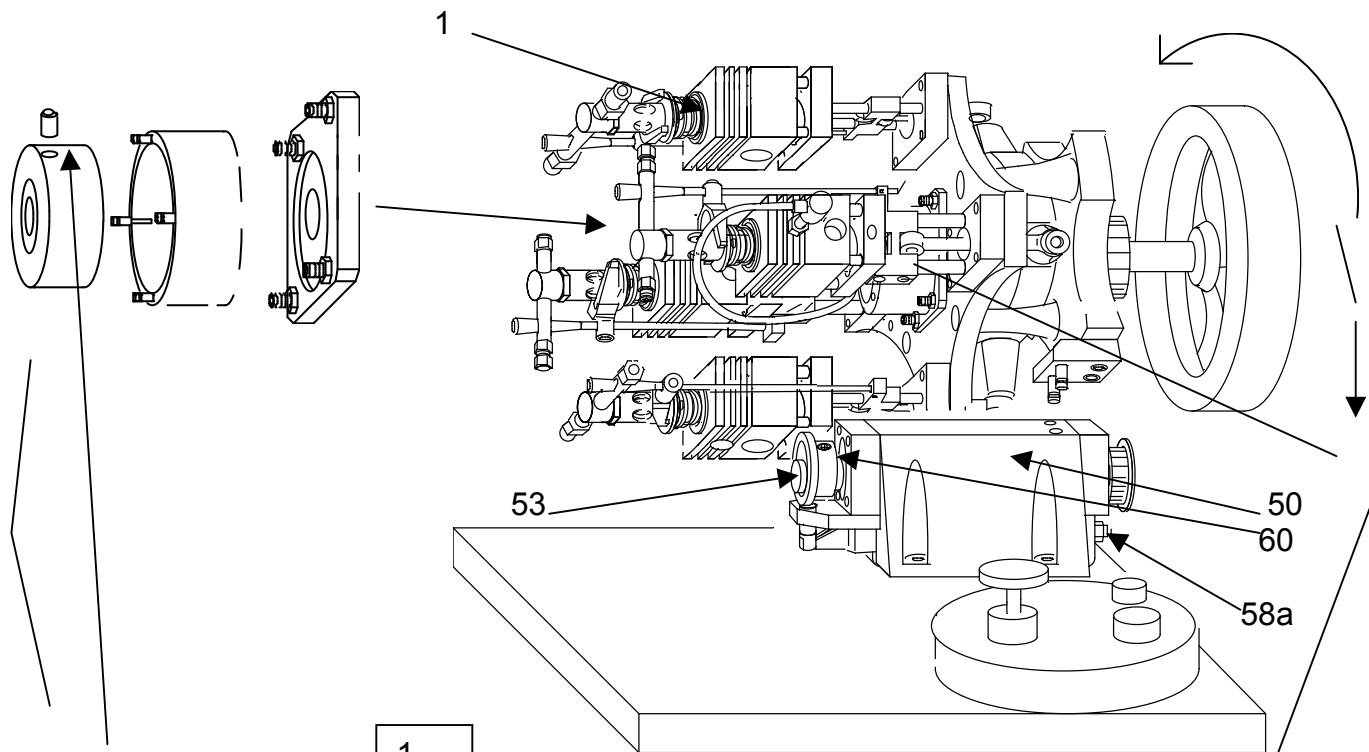
Fill the tank with gas and open the gas valve (41).

Move one cylinder piston out by hand.

Screw in the adjusting screw (30) on the valve rod taper until the gas valve on the carburettor pipe opens if the fork (32) is resting on the air valve ring (33) (the piston should be moved in again after adjustment to close the gas valve again.)

This procedure should be repeated for the other cylinders.





12.) Adjusting the ignition (example)

The ignition is adjusted at two positions.

Adjustment on **rotor**

Position cylinder 1 at the upper dead point (crosshead completely to the left).

- 1.) Loosen the screw (69) on the rotor.
- 2.) Turn the rotor (61) until the distributor finger (70) is positioned approx. 3 mm in front of the outlet for cylinder 1 (64).
- 3.) Tighten the screw in the rotor again in this position

Adjustment on **cam** (pedestal)

- 4.) Loosen the screw (60) on the cam (53).

5.) Position the cam at the maximum lower deflection.

- 6.) The ignition spark should jump consecutively at the upper piston dead point or shortly after this, between the rotor (61) and stator (62) and at the outlets. (64-68)

13.) Test (with open tank cap and full tank)

Fill the cylinders with a gas/air mixture by pulling out the individual pistons. Push the cylinders completely into the cylinders again. Rotate the flywheel or motor. All pistons should be pushed consecutively out of the cylinder bushings (caution: do not touch the crosshead or connecting rods during the test)

The connecting rods can be screwed to the oscillating gear of the test was successful.

The motor can now be started.

The optimum speed can be determined by minimally adjusting the rotor or ignition point forwards or backwards.

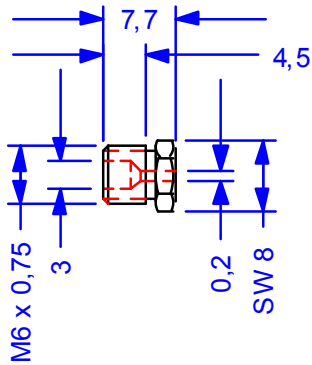
It is possible to test again whether all the cylinders are running by laying a finger on the individual exhaust outlets.

Summary:

(The ignition point is adjusted on the rotor. The voltage or current strength is adjusted on the cam. Both should correspond to each other. The other part must be readjusted if one part is changed. The screw 58a in the Piezo ignition should be firmly tightened, otherwise the ignition will not delivery sufficient voltage)

14.) If the motor does not run, or does not run well.

The most frequent cause is blocked jets in the gas valves.



Checking the gas valves

Press the taper (31.1) in direction A when the gas tank is full and opened. The jet (30) is blocked if no gas emerges.

The jet should be removed for cleaning.

Loosen the screws 1, 2, for this purpose, proceeding in 1-3 sequence.

(Unscrew the gas line as well in the case of V2, TA4 and R2 motors)

The jet should be blown out from the front or pushed through with a fine copper wire (gas should be used for blowing out if necessary)

Mounting is realised in reverse order

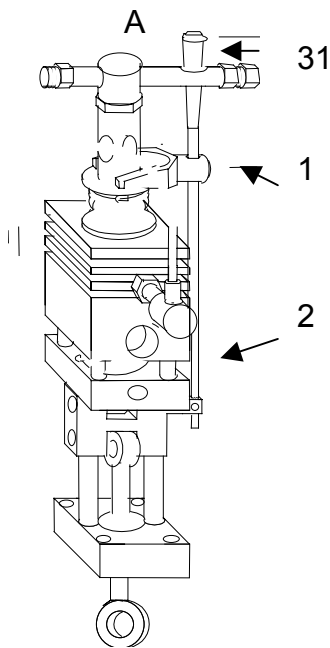
Adjusting the carburettor

Screw the adjusting screw (34) so far into the valve until the gas audibly emerges when the fork rests on the spring lock washer.

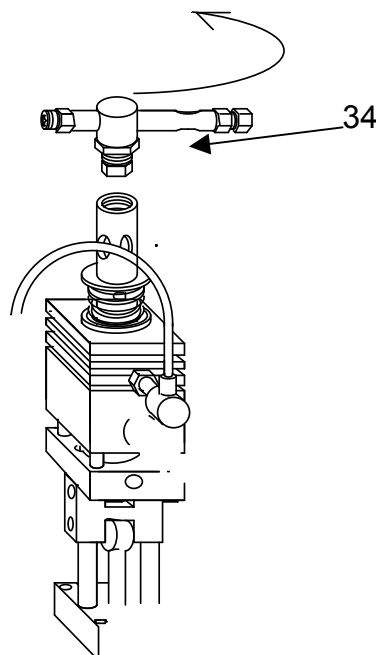
Then tighten the lock nut 34.1 firmly.

(Jets block if they are penetrated by liquid butane.

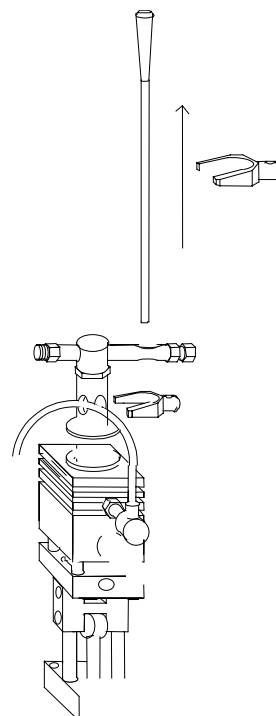
The oily particles block the fine jet apertures. This prevents the tank filling completely, and the running motor cannot be held at a tilt.)



1



3



2

A further cause can be a defective ignition.

Checking the ignition

Unscrew the spark plugs and check the ignition sparks and ignition point.
Clarify the following if these are not correct.

- 1.) Are the plugs positioned correctly on the electrical cables?
- 2.) Does the timing when the spark jumps between the stator and rotor correspond to the timing of the upper cylinder dead point?
- 3.) Is the correct cylinder connected to the correct output on the stator?
- 4.) Does the cam have the maximum deflection relative to the ignition point?
- 5.) Is the screw (58a) on the ignition tightened firmly?
- 6.) Does the actuation, cam- pin- ignition function (oil pin if necessary)?

See also Chapter 12 and 13 in this respect