

MACHINES, ROD, CONTINUOUS

Operation

1. Introduction.—This Instruction describes the operation of the Machines, Rod, Continuous (see Fig. 1) which is used in conjunction with Rods, Continuous, for rodding ductways (see TOOLS & TRANSPORT, Hand Tools, R 1250). The principle of this machine is that a rod pushing mechanism is driven by a piston operating within a cylinder which is supplied with compressed air by a Compressors, Air, No. 3. The rate of supply of air to the cylinder and therefore the speed of rodding can be directly controlled by the operator.

2. Preliminary operations.—The jointing chambers or manholes at either end of the section to be rodded should be guarded in accordance with J 1150 and tests made for gas in accordance with J 1110; if negative test results are obtained, proceed as follows.

3. Fitting the leading hose.—A 30 ft. length of flexible metal leading hose is supplied with each machine. One end of this is terminated with a brass bellmouth, and the other end with an adapter incorporating two pins. Push the bellmouthed end as far as possible into the ductway to be rodded leaving a minimum of 2 feet extending over the edge of the jointing chamber away from the duct being rodded for connection to the machine.

4. Positioning the machine.—Wheel the machine into position so that the wheeled end abutts the end of the leading hose. Rotate the spindle locking plate and retract the wheels. Insert the pinned end of the leading hose into the end of the machine frame and lock in position with the pegs provided.

5. Anchoring the leading hose.—The hose should be held in position by fixing to it a Braces, Hose. Fix the brace as near the duct mouth as possible, taking into account the layout of existing cables, and anchor at right angles to the hose by extending the screwed end until it is firmly held between the two opposite walls of the jointing chamber or manhole. This brace is provided to prevent the hose being forced out of the duct when the thrust needed to propel the rod approaches maximum.

6. Fitting the continuous rod (see Fig. 2).—Remove the two pins situated behind the recording meter and withdraw the upper and lower cam holding keys; remove the cam from the machine. Fit the leading end of a continuous rod with the male end of a marrying set, lay it in the machine and push into the leading hose until the rod is level with the duct entry. Replace the cam, re-insert the two keys and replace the two pins behind the recording meter. Check that

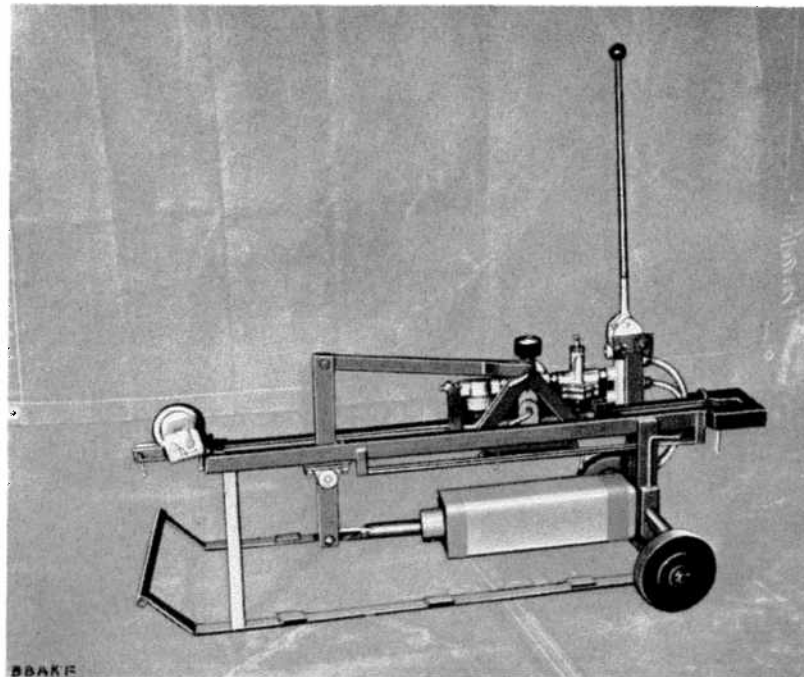


FIG. 1

the wheel of the recording meter is in contact with the rod and reads zero feet.

7. Direction of travel.—The direction of travel of the rod can be pre-determined by the manner in which the transverse mechanism which incorporates the cam is engaged. On the underside of the transverse mechanism will be seen two hinged latches, either of which can be in the engaged position. The latches are maintained in the engaged position by the cranked pin which rides between two parallel retaining rods along the side of the machine. To arrange the mechanism for pushing the rods into the ductline the latch on the meter side should be engaged. The latch on the hose side of the mechanism should be engaged for withdrawing the rod from the track. *“On no account should the two latches be engaged simultaneously”*.

8. Safety precautions.—When operating the Machines, Rod, Continuous the following precautions must be observed:—

(a) No exposed part of the body should be allowed to come into direct line with the exhaust of the compressor, or rodding machine (see GENERAL, General, S 1019 also) or into contact with the cylinder on the rodding machine.

(b) No attempt must be made to reverse the latches or otherwise touch any moving parts of the machine except the control lever and valve whilst the air supply is connected.

(c) Eyeshields should be worn (see GENERAL, General, S 3100).

9. Connecting the compressor.—The machine should be connected to the compressor using the compressor air hose. Ensure that the air supply tap on the compressor is closed and the by-pass tap open. Start the compressor after first checking that the oil levels are correct in both compressor and motor unit. After a few moments of running the by-pass tap should be closed and the readings on both pressure gauges of the compressor should quickly rise to 150 lb./sq. in. The control valve on the compressor should be adjusted until the gauges read 120 lb./sq. in. After a short period of running the air reservoir on the compressor should be filled to maximum capacity and the safety valve will open and almost immediately close. This cycle of opening and closing of the safety valve will occur at frequent intervals if no air is being used, or lost due to air leaks.

10. Operation of the machine.—Open the air line tap and unscrew the control valve on the machine,

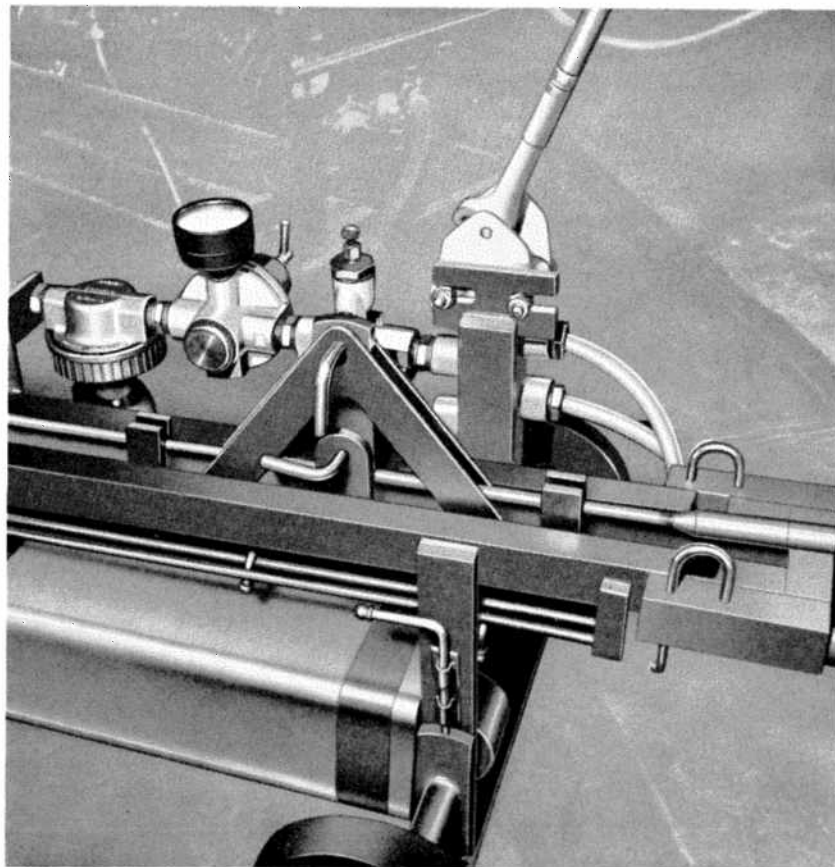


FIG. 2

shutting off the air supply to the machine. Under this condition the operation of the handle on the machine will not cause the transverse mechanism to operate. By operating the control lever backwards and forwards whilst slowly screwing home the control valve on the machine the transverse mechanism will gradually build up speed as the supply of air to the machine increases. The first few yards of rod should be pushed at a slow speed to enable it to negotiate the sharp contours of the leading hose. When 10 yards of rod have been measured off by the recording meter the control valve should be screwed fully home and rodding at maximum speed should be continued. The reading on the pressure gauge when multiplied by ten represents approximately the thrust applied to the rod in lbs. Under normal working conditions the average pressure will be roughly 30-40 lb./sq. in. If however, rodding progress is stiff, reduce frequency of operation of the control lever until the operating pressure reaches 50 lb./sq. in. If rodding is still stiff this process can be continued in steps of 10 lb./sq. in., until 100 lb./sq. in. is reached. If 100 lb./sq. in. is reached and complete stoppage of forward movement of the rods occurs prior to the rods reaching the jointing chamber or manhole at the far end of the length, switch the compressor off, and open the by-pass tap to allow all air to escape. Attempts should be made to marry up from the far end using cane or P.V.C. rods fitted with a female marrying end. An estimate of the total length (in yards) of cane or P.V.C. rods required to marry can be made by subtracting the reading on the rodding meter (divided by three) from the overall length of duct being rodded, in yards. When a successful marry

has taken place the compressor should be restarted, the by-pass tap closed and the machine again used to push the rods through the duct line. Assist the machine by manpower pulling out the cane or P.V.C. rods at the far end. For action to be taken when the attempt to marry up are not successful due to an obstruction in the duct, see F 3040.

11. Pulling in the draw rope.—When the continuous rod has reached the far manhole or jointing chamber open the by-pass valve on the compressor, close the air line valve and remove the cane or P.V.C. rods and marrying sets. Fit the continuous rod with a leader with Draw-rope, No. 1 attached. Remove the cranked pin from the latch at the meter end of the transverse mechanism on the machine and insert into the latch at the hose end of the mechanism. Close the by-pass valve and open the air line valve on the compressor and operate the control lever to pull the rods out of the duct line and at the same time draw in the Draw-rope, No. 1.

12. Dismantling.—After the Draw-rope has been drawn into the duct line, switch the compressor off, open the by-pass valve and after the air has escaped, disconnect the air-hose from the machine. Next, remove the two pins at the rear of the recording meter, and take the cam out of the mechanism and remove the continuous rod. Replace the cam and pins. The leading hose should now be disconnected from the front of the machine, the brace released and the hose withdrawn from the ductway and neatly coiled. Rotate the spindle locking plate and extend the wheels on the machine.

References:—F 3040, J 1110, J 1150
(TD8.2.3) GENERAL, General, S 1019, S 3100
TOOLS & TRANSPORT, Hand Tools, R 1250

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