



NOTICE TO TENDERERS NO: 1
Pages: 9

26 February 2025

TENDER FOR DESIGN, MANUFACTURE, SUPPLY, DELIVERY TO SITE, OFF-LOADING, INSTALLATION, TESTING, COMMISSIONING AND MAINTENANCE OF 145 KV SWITCHGEAR AND ASSOCIATED EQUIPMENT (WOODSTOCK SWITCHING STATION)

CLOSING DATE OF TENDER: 12 March 2025
BOX NUMBER: 204

Dear Sir/Madam

SITE CLARIFICATION MEETING AND ADDITIONAL INFORMATION

1) CORRECT TENDER NUMBER ON PAGES 224 TO 264

Tenderers to note the correct tender number is 172Q/2024/25 as part of the main heading on the top of the pages and NOT as indicated at the bottom of pages 224 to 264. Tenderers shall ignore the tender number as reflected at the bottom of these pages.

2) ADDITIONAL INFORMATION: (Contract, C3.1 Description of Works)

Tenderers to note that additional information for the existing switchgear in regard to the busbar system and isolators were added.

3) SITE CLARIFICATION MEETING

Both the presentation, 3 x technical drawings (DR 3397, LB 2023/03/20246/S-01 and New HV switchgear overlay) as well as the minutes of the compulsory site clarification meeting are attached.

Tenderers are to return a signed copy of this notice with the submission of their Tender. Failure to return a signed copy of the Notice may result in the Tender being declared Non-Responsive.

Yours faithfully,

.....

For:

Director: Supply Chain Management

WRITTEN ACKNOWLEDGEMENT OF RECEIPT OF NOTICE 1 – 172Q/2024/25

Signature **Date**

Legal and full name of tendering entity:

.....

1.3.2 Busbar system

The busbar system forms the connection between the panels which are situated next to each other - see Fig. 1.3.2.

The system is made up of a three-phase set of conductors (4) suspended in one plane from support insulators in a tridental configuration (3). The whole unit is accommodated in a steel enclosure (2) which is divided into panel sections.

The busbar conductors consists of two halves of mirror-image cross-section. At various locations these are mutually connected. Each panel has two support insulators, between which a busbar connector is located. The fixed spherical contacts (6) of these are located on the busbar conductors.

On one side the busbar is closed with a flat end-cover.

On the other side there are three single-phase busbar earthing switches in triangular configuration. The fixed contacts (1) of these are located on swan-necked end-pieces on the conductors.

The support insulators are fixed in such a way as to absorb the thermal expansion of the conductors.

The isolators and earthing switches are described in greater detail in chapters 3.2 and 3.3 respectively.

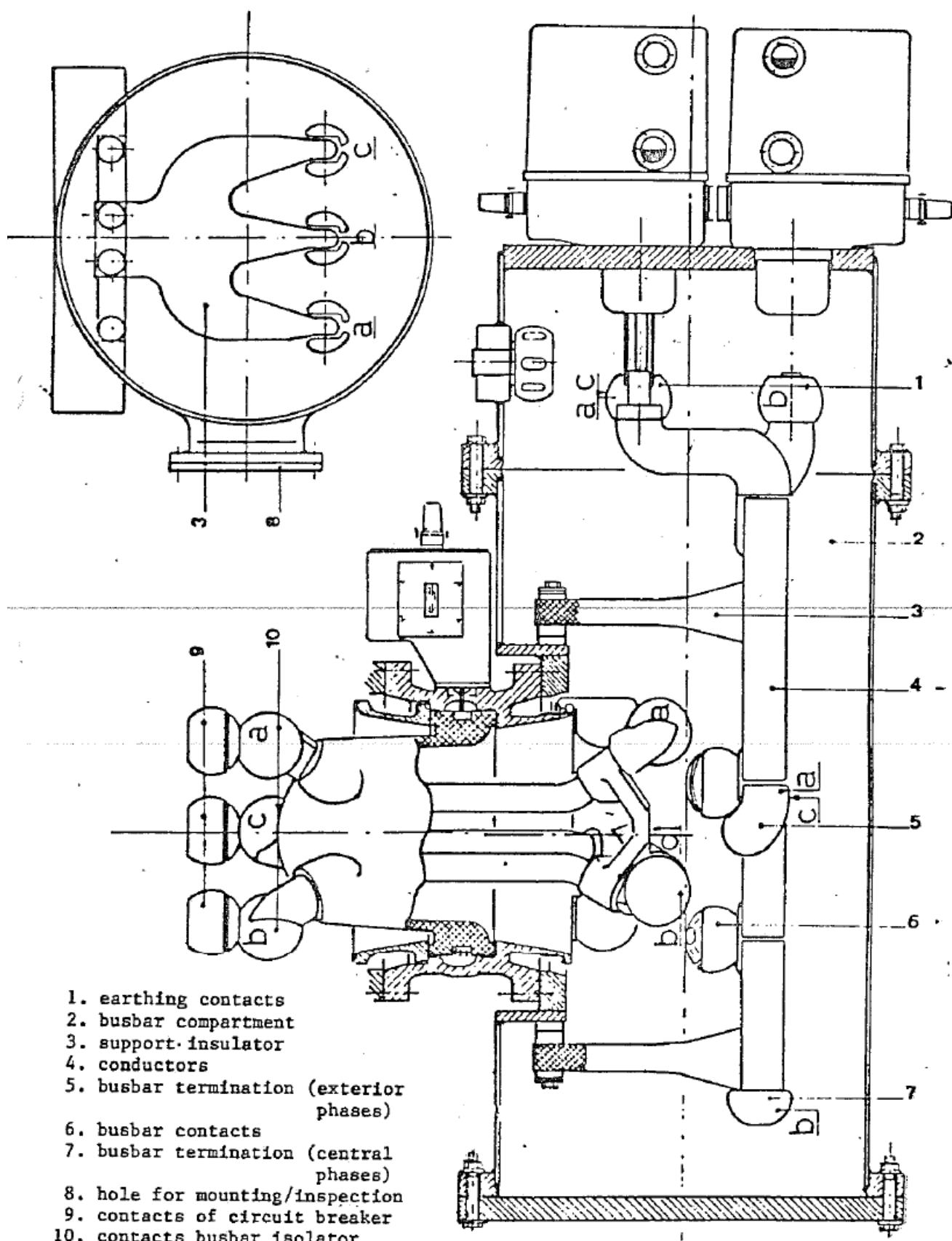
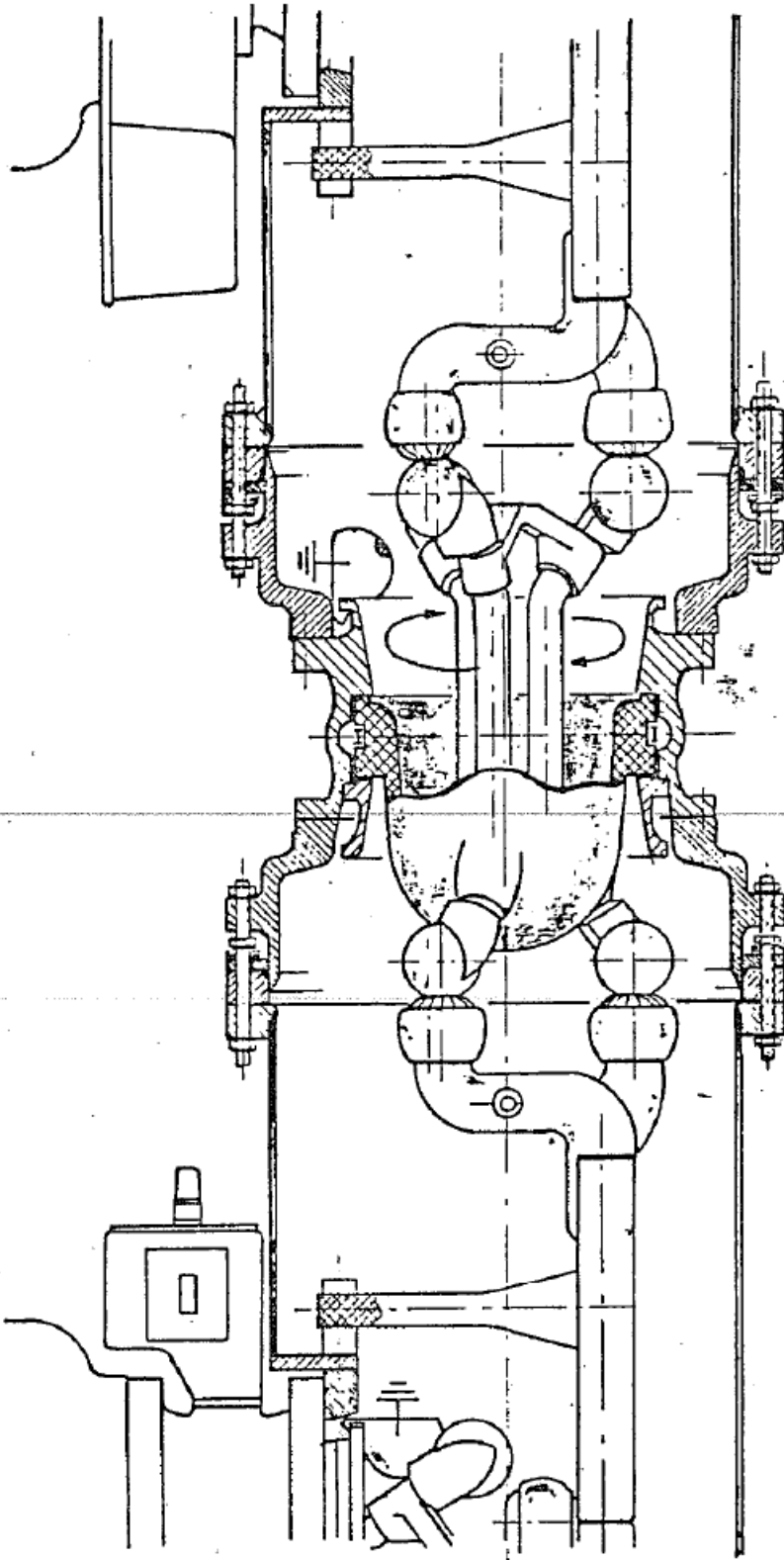


Fig. 1.3.2. Arrangement of busbar system.

1.3.2.2 Bus section isolator in the busbar system



An isolating switch has been incorporated in the busbar system for longitudinal coupling. This allows the busbar system to be separated into two parts.

2.2 THE ISOLATOR

2.2.1 Principles

The isolator is of the three-phase type.

The following applications are possible:

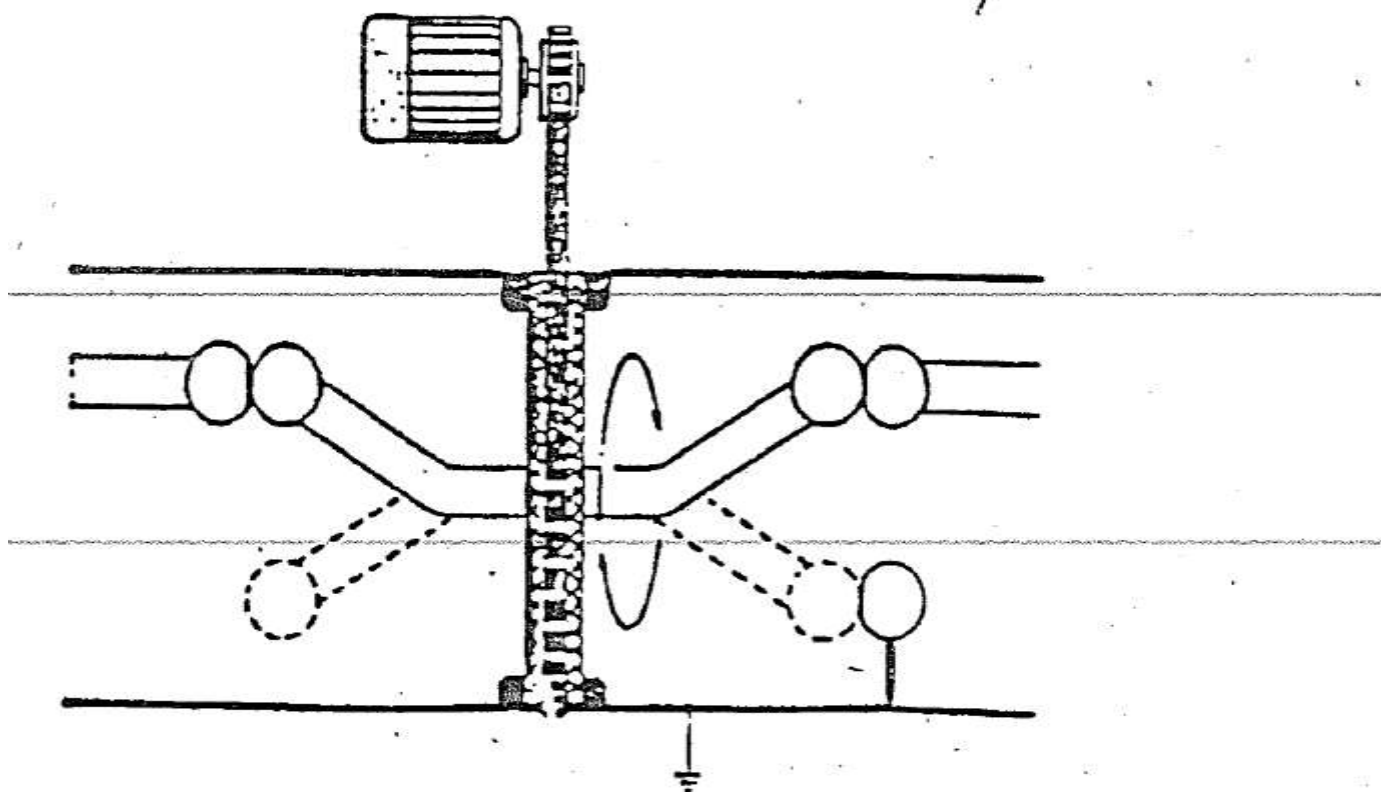
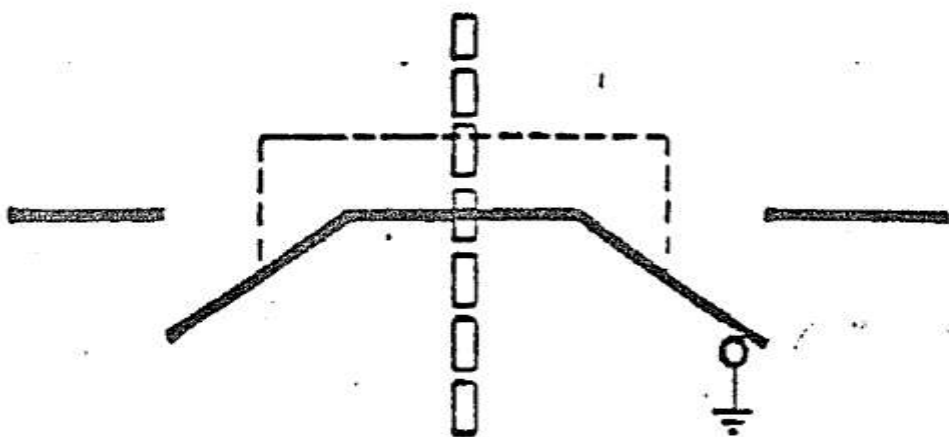
1. busbar isolator
(between busbar system and circuit breaker)
2. cable isolator
(between cable and circuit breaker)
3. line isolator
(between line and circuit breaker)
4. sectionaliser
(between two busbar systems)

The isolator has a dual function, namely:

1. pressure isolation
2. electrical isolation

The isolator is of the double-gap type. In the open position the contacts are earthed, thus creating an earthed barrier between the isolated components. This electrostatic screening ensures full safety for the personnel working on the switch-gear.

Fig. 2.2.1 Isolation principle.



2.2.2 Arrangement and functioning

2.2.2.1 The contacts

The moving parts of the isolator consist of a dome-shaped insulating element containing three conductors with spherical ends.

The insulator is rotatable about its axis and is mounted in a cylindrical housing. Boxes for the drive mechanism and signalling mechanism are mounted on the housing. In the OFF position the three conductors are earthed. The spherical ends of the conductors are in the configuration of an equilateral triangle with their centre points on a circle of 380 mm diameter and therefore at a distance of 330 mm apart from centre to centre. This 330 mm is the distance between the extreme phases of the busbar system. In the ON position the isolator spheres are thus exactly above the three conductors. The centre of the sphere is at 15° from the centre line of the associated conductor. This makes it possible to mount both spheres on one conductor, exactly above each other or at an angle of 30° . The design for the drive and the transmission to the dome-shaped insulator are such that the insulator makes a rotating movement with a stroke of 58° . Looking towards the convex side of the dome, this is a leftward movement to the OFF or earthed position. The earth contact is designed for movement in this direction and requires that the associated eccentric sphere should be mounted with the extending side towards the earth contact.

2.2.2.2 Isolating mechanism (see Fig. 2.2.3)

The isolator consists of a housing (4) containing a rotatable insulator (3) with isolating contacts (2,8). Mounted on the side of the housing are a box for the drive mechanism (5) and a box for the signalling mechanism (6). The insulator is rotated radially by a chain device powered by a servo motor. In the open position of the isolator all phases are earthed to the enclosure via the contacts (7,8). The electrical signalling is achieved via auxiliary contacts, while the position is indicated by a flag moving behind the sight glass of the box housing the signalling mechanism.

Making is effected by the servo motor. After the making command has been given, the servo motor drives, via the drive mechanism, the main chain to which the insulator is attached. The angle of rotation from the open to the closed position of the isolator is 58° . At the moment when the isolating contacts end their stroke, the auxiliary contacts in the signalling mechanism break the motor circuit and the motor stops. The brake travel of the motor is limited by a braking magnet. (See diagram).

A shearing pin is incorporated as a safety device for the drive chain.

To replace this pin, see Fig. 4.4.1.

1. contact on the conductor to truck-type section of the circuit breaker
2. current contact
3. rotatable insulator
4. housing
5. drive mechanism box
6. signalling apparatus box
7. fixed earthing contact
8. current or earthing contact
9. contact on busbar

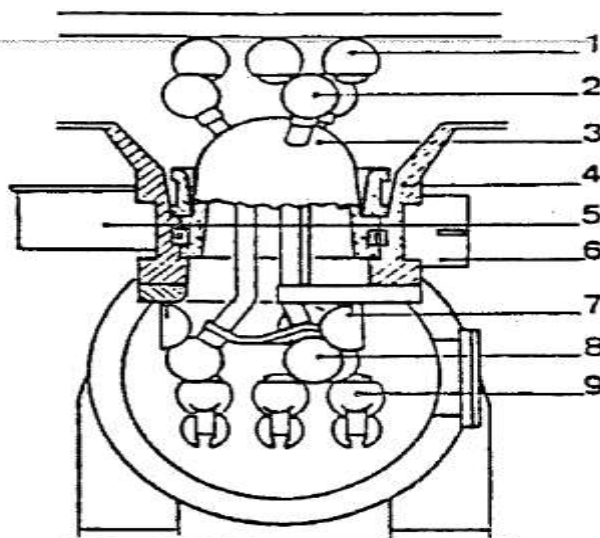


Fig. 2.2.3 Section of the isolator.

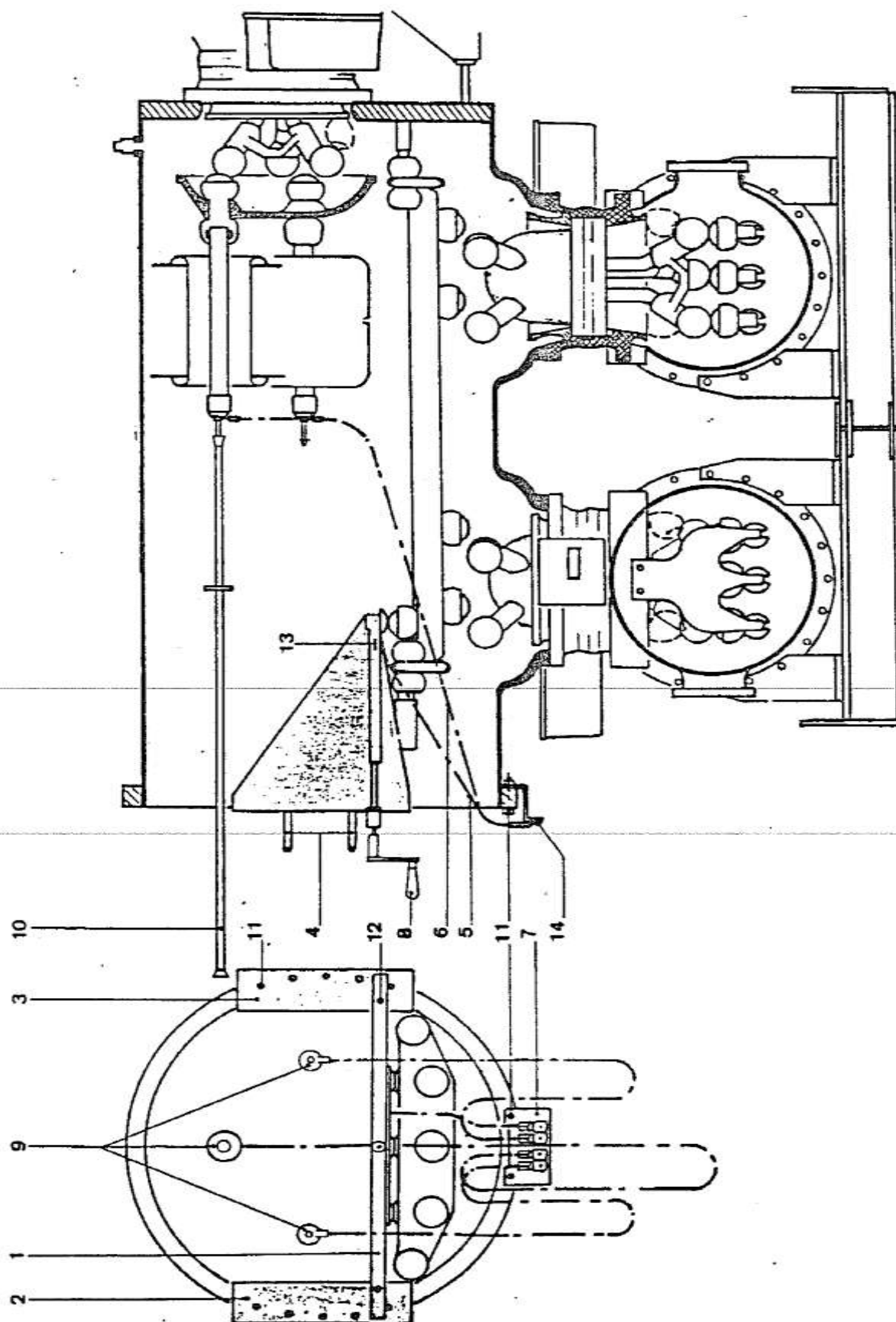


fig. 1.