

- D. Automatic lubricators shall be provided with emergency hand lubrication facilities.
- E. All lubrication filling points shall be located in easily accessible locations. Where necessary and required extension tubes shall be provided. Lubrication to machinery in motion shall be arranged external to the guards.

1.1.30 Operation and Maintenance Manuals

- A. One month before the issuance of the Provisional Acceptance Certificate (PAC) the Contractor shall submit to the Employer six copies of the approved Operation and Maintenance Manuals in Arabic and in English. O & M – Manuals on CD – Rom in PDF format and shall be produced in "loose sheet" form, DIN A4 size in suitable loose leaf box files separately for each station and subdivided into the major components of the Plant, after the draft has been approved by the Engineer.

1.1.30.1 Draft Copies

- A. Draft copies shall be produced and submitted by the Contractor during the Contract Period early enough (at least 3 months) to allow for possible alterations and re-submission in addition to a language translation check. Taking over of the Plant shall not take place until the approved copies are produced and submitted. Draft manuals shall be submitted in their entirety. Submission of sections in isolation will not be accepted.

1.1.30.2 Preparation of Manuals

- A. The operation and maintenance manuals shall be prepared in such a way as to provide a step by step description of the erection, commissioning, testing, operation (setting to work and shutting down), maintenance, dismantling and repair and shall include:
 - a. Schedule of equipment supplied, giving manufacturer's name and address and appropriate make/model No./ Catalogue No
 - b. Schedule of routine maintenance of all equipment supplied, specifying the hourly, daily, weekly, monthly, yearly inspection, testing, and other actions to be taken for proper maintenance including supply of 1000 printed carton record sheets for each individual plant component.
 - c. Schedule of spares with manufacturer's reference number, cross referenced with the sectional arrangement drawings