



SPECIFICATION FOR OPERATION TABLES (L-S22)

JKR 20300-0115-23

**CAWANGAN KEJURUTERAAN
ELEKTRIK**

SPECIFICATION FOR OPERATION TABLES

1.0 Scope Of Specification

This specification applies to the design, manufactures, inspection, testing, delivery to site, unloading, complete installation, wiring, connections, final testing and putting into commission, handing over in approved working order and maintenance during defects liability period as stated in the conditions of contract.

This specification should be read in conjunction with the Tender Forms, Schedule of Rates and Prices and Drawings which bear reference to this specification.

2.0 Scope Of Work

The work covers but not be limited to the supply, delivery, installation, testing commissioning, handing over in approved working order and maintenance there after for the period stated in the conditions of contract, the whole of the Operation Tables Installations as detailed hereunder and on the drawing accompanying this Specification, and also covers such minor works as are necessary for the proper carrying out of the installation and operation of the system, whether or not, such works are specifically called for in the specification and drawings.

- a) Operation Tables
- b) Services and maintenance
- c) Associated works
- d) Testing and Commissioning

3.0 Standards

All equipment supplied shall in all relevant respects conform with the current editions of all relevant Malaysian Standard, British Standards, IEC601 or other approved National Standard as regards to design, construction, performance and test. A copy of such standards in the English language shall be submitted with the tender.

4.0 Particulars & Guarantees

Tenderers shall submit at the time of tendering detailed technical Particulars and Guarantee in respect of the equipment offered, which shall be binding. No departure from these Particulars and Guarantees shall be permitted except with the written approval of the Superintending officer. Notwithstanding any description, drawings, illustrations or pamphlets which may be submitted with the Tender, all details other than those stated by the Tenderer in the Schedule of Departures from specification, at the time of tendering, will be deemed to be full conformity with the specification. Should any deviation other than those stated in the Schedule of Departures from specification submitted by The Tenderer be found on the equipment during or after the installation, **the Superintending officer shall have the right to reject the equipment and the Tenderer shall bear the full cost of replacing new equipment complying with the specification and recommissioning of the installation.**

The NSC shall guarantee the plant and equipment to be supplied under this Tender against faulty design, material and workmanship at the manufacturer's works for the period stated in the conditions of contract commencing from the date handing over in approved working order of the complete installation under the contract.

5.0 Arrangement & Setting Out

The arrangement of the various equipment and associated services shall follow closely that set out on the Drawings except where modification is required to suit the specific materials and equipment to be provided, to fit the latest available information on the building construction details, to meet the requirements of other services and equipment or to incorporate improvements proposed by the NSC and such other modifications as approved by the S.O.

6.0 Coordination Requirements

The NSC shall co-operate and co-ordinate with the Main Contractor and other NSC to ensure that the requirements of the equipment and associated services are met in the provision of the works by others set out the Clause.

The NSC shall provide all necessary information regarding these requirements to the Main Contractor and his NSC to allow the requirements to be met. The NSC shall also make all necessary checks and inspections to ensure that the requirements have been properly met in good time to avoid delay to his works or the works of others. Any remedial work, by him-self or others, required as a result of his failure to provide the necessary information in good time or to carry out inspection or checking shall be carried out at the NSC expense and without extension of time in respect of any delays so caused.

7.0 Units Of Measurement

Throughout this Specification and on the Drawings all units of measurement are in Metric Units of measurement unless otherwise indicated.

8.0 Metrication

All gauges and indicators shall be provided with scales marked in S.I. Units as well as the present conventional units.

9.0 Standardization

Each item of equipment shall generally be a standard proprietary design manufactured in quantity by an established manufacturer of such equipment and shall incorporate all the features customarily service intended wherever such features are not inconsistent with the provisions of this Specification.

9.1 Materials, equipment and fittings shall be standardized as far as possible throughout the installation. In particular, every attempt shall be made to achieve standardization in the following respects:

- a) All major units of equipment shall be supplied by a single manufacturer and other equipment shall be supplied by the smallest possible number of manufacturers.
- b) All electrical motors not forming an integral part of the driven equipment shall be of the same make and have the maximum interchange-ability of components.
- c) All items which are of a similar nature (e.g. all valves, all pipe fittings, all switchgear) shall be obtained in each case from a single manufacturer or from the smallest possible number of manufacturers.
- d) All items for similar duties shall be the same make and model.

10.0 Tropicalisation and Vermin Proofing

All equipment covered by this specification shall be fully tropicalised to make them suitable for continuous operation in the extremely humid and tropical climatic conditions experienced in Malaysia.

10.1 The Operation Table fittings will normally be operated under the following air conditioned environment.

Temperature	: 24 degrees Celsius or 75 degrees Fahrenheit
Humidity	: 55% + 5

Notwithstanding the above, it is required that the table shall not deteriorate under normal tropical conditions.

10.2 The NSC shall provide, whether specifically called for in the Specification or not, all ancillary equipment, safe guards and sensing, indicating and protective devices required to ensure that the proprietary equipment supplied will perform satisfactorily specified or claimed under the above specified conditions.

10.2 The equipment shall also be designed to prevent ingress of vermin, accidental contact with live parts, and to minimize the ingress of dust and dirt. Materials which may be liable to attack by termites and other insects should not be used.

11.0 Installation, Operating & Maintenance Instructions

As soon as the general arrangement and details of the equipment to be supplied have been finalized and before the delivery of the equipment, the NSC shall submit to the Superintending officer **four (4)** copies of detailed installation, operation and maintenance instructions in respect of the equipment to be supplied. The instructions shall cover the main as well as any associated equipment. For this purpose, manufacturer's standard brochures will be acceptable provided that they refer particularly to the equipment to be supplied and are free from extraneous matter.

11.1 The instructions shall include essential details, drawings and sketches of the equipment installation, operation and maintenance techniques, make mention of special materials where used and include schedules of recommended lubricant etc. All manuals submitted shall be properly bound with hard-covers and titles to the satisfaction of the Superintending officer.

11.2 The contents shall be arranged in the following manner:-

- a) Index
- b) Cross reference guide for each group of equipment (beginning each group, listing the items in it and indicating the appropriate section of manual for each item).
- c) Sections for each major item of equipment (or set of minor equipment) each including:-
 - i) General description, 'name plate' data, manufacturers and agents name, etc.
 - ii) Operating instructions.
 - iii) Emergency directions.
 - iv) Installation, servicing and maintenance instructions.
 - v) Arrangement drawings.
 - vi) Parts list.
 - vii) Supplementary information, including standard leaflets, brochures, etc., for major components.
- d) Miscellaneous supplementary information.

The cost of these manuals shall be deemed to be included in the Tender Price.

12.0 Tender Drawings

Detailed scaled drawings similar to tender drawings showing the dimensions and movement of the operating table shall be submitted with the tender. The scale of such drawings shall not be smaller than 1:100.

13.0 Working Drawing

Within 3 weeks after award of the Tender, the NSC shall submit to the Superintending officer for his approval dimension general arrangement and section drawings and schematic/wiring diagrams of the equipment ordered. These drawings are to be submitted in quadruplicate. The drawing submitted are to be modified in necessary as requested by the Superintending officer and re-submitted for final approval. It is be understood, however, that approval of the drawings will not exonerate the NSC from any responsibility in connection with the work.

14.0 Tool & Appliances

This Tender shall include the supply of the following tools and appliances whether they are specified in the Schedule of Rates & Prices or not. The Tenderer is also required to give a full list with details when submitting his Tender:-

- a) Sets as required of any special tools, gauges and handling appliances required for the normal maintenance of the equipment.
- b) Sets as required of any special tools, gauges etc. required for the assembly, checking or adjustment of the equipment.

15.0 Spares

The Tenderer shall submit with his Tender separate Schedule of Spares recommended by him. This Schedule should contain the price and delivery period of each item of the spares recommended. The Tenderer shall also recommend the quantity of each item to be stored for purpose of maintenance. The prices for these shall not be include in the total Tender Price and the purchase of all or any of the spares listed shall be at the option of the Superintending officer. These prices shall be valid for acceptance during contract period (extended if applicable) of the project.

- 15.1 All spare parts shall be fully interchangeable with the corresponding part used in the main items of the plant and with each other without having to resort to machining or additional fittings at site. All spares shall be finished, protected, packed and labeled in a suitable manner to prevent deterioration during prolonged storage in tropical climate.

16.0 Operation Tables

16.1 Type A (Mobile with Manual Hydraulic Foot Pump Control)

Operation Table to be supplied under this contract shall be as described below:

16.1.1 Movements.

Adjustable positions (Minimum requirements):

- | | | |
|------|---------------------------------------|--------------------------|
| i) | Trendelenburg position | >40 |
| ii) | Reverse Trendelenburg | >45 |
| iii) | Height Adjustment (without mattress) | |
| | Minimum height | <750mm |
| | Maximum height | >1000mm |
| iv) | Lateral tilt | ± 15 |
| v) | Head section | ± 45 |
| vi) | Table top rotation about central axis | = 360 degrees |
| vii) | Leg section adjustment | = + 10 deg. to -100 deg. |

16.1.2 Mechanism

The trendelenburg, height and lateral adjustments shall be achieved by manually controlled hydraulic pumps together with a reliable locking system. The system shall allow quick maneuvering and positioning during a crisis.

Other adjustments shall be achieved through a mechanical means with a clamping device.

16.1.3 Construction

The table top shall be four sectional.

Head and leg plates shall be removable.

The table shall be mobile on at least four castors provided with a suitable locking device.

16.14 Materials

- i) Base, column, framework, side rails, clamps and insertion parts shall be of stainless steel.
- ii) Castors shall be heavy duty and electrically conductive.
- iii) The whole table shall be water-proof
- iv) The oil pumps and all parts of the hydraulic system shall be leaked proof.

16.2 Type B (Mobile with Electrically Remote Control)

Operation Table to be supplied under this contract shall be as described below:-

Movements (Minimum Requirements).

Adjustable positions (Minimum requirements).

i)	Height Adjustment (without matters)	
	Minimum height	745mm
	Minimum height	1100mm
ii)	Trendelenburg position	> 35 deg
iii)	Reverse Trendelenburg	> 35 deg
iv)	Lateral tilts (left & right)	15 deg
v)	Break (extension) position	210 deg
vi)	Break (flexion) position	130 deg
vii)	Leg section adjustment	= +10 deg to -100deg.
viii)	Head section	= +45 deg

16.2.1 Mechanism

The table shall be fully mobile and is electro hydraulically operated and battery powered. All movement and adjustment is fully powered i.e. electrically controlled via a handset controller. The movement and adjustment includes trendelenburg, lateral tilt, break and height, in addition to brake operation and wheel configurations.

16.2.2 Construction

The table top shall be five-section with an interchangeable and adjustable head and leg section.

16.2.3 Materials

- i) Base, framework, side bars, clamps and insertion parts shall be of stainless steel.
- ii) Castors shall be heavy duty and electrically conductive.
- iii) Mattresses and Pads shall be conductive and of disinfectant resistant material. The mattress shall not be less than 75mm thick.
- iv) The whole table shall be water-proof.
- v) The oil pumps and all parts of the hydraulic system shall be leaked proof.

16.2.4 Power Supplies

The table shall be powered via sealed batteries providing 24 volt output. A built-in battery charger unit complete with charger cable shall be provided. The batteries with charger unit and charger cable shall be located at table base. There shall also be a socket at the table base for the connection of and external battery charger.

17.0 Radiography requirements

- i) The table shall be suitable for use with a fixed or mobile X- Ray equipment as well as a C-arm Image Intensifier.
- ii) The complete table-top and pads shall be radio-translucent for the full length.
- iii) There shall be suitable access for standard X-Ray cassettes to be provided which runs the full length of the table top.

18.0 Accessories

18.1 Basic Accessories

The following basic accessories shall be provided for each table.

i)	Arm board (Narrow)	2pc
ii)	Lithotomy stirrups with rubber sleeves and slings	1set
iii)	Anesthetic screen	1pc
iv)	Clamp, rotary	4pc
v)	Clamp, circular	4pc
vi)	Accessories stand, mobile on castors	1pc
vii)	Arm support, perplex	2pc
viii)	X-Ray cassette tray	1pc

18.2 Additional Accessories

The following additional accessories shall be provided. (Please refer to Schedule to Surgical Table Additional Accessories as attached).

19.0 Manufacturer Inspection, Testing And Commissioning

19.1 Manufacturer Inspection

The whole of the equipment to be supplied under the Tender shall be subjected to inspection and acceptance tests by the S.O.'s Representative and his officers in the factory prior to delivery. The approval by the S.O.'s Representative of the results of any such inspection or test shall not prejudice the right of the Superintending officer to reject the equipment if it fails to comply with the Specification when erected or to give complete satisfaction in service within the Defects Liability Period.

The costs required for the inspection and tests, including the provision of all necessary equipment, facilities, expenses, allowances etc for the S.O.'s Representative and his officers to inspect equipment and to verify the tests, shall be deemed to be included in the Tender Price.

Adequate notice shall be given when the equipment is ready for inspection or test and every facility shall be provided by the NSC to enable the S.O.'s Representative to carry out the necessary inspection and tests at the factory.

19.2 Site Testing

One completion of the installation work on site, the NSC shall, at his own expense, arrange for all necessary tests to be carried out on the equipment. The tests to be carried out shall be as prescribed in the relevant Malaysian Standard, IEC601, British Standard Code of Practice and other tests deemed necessary by the S.O.'s Representative. In the event the installation fails to pass any of these tests, the NSC shall take such measures as are necessary to remedy the defects and the installation shall not be considered as completed until all such tests have been passed.

The S.O.'s Representative reserves the right to be present at all tests and the NSC shall give at least one week notice in writing to the S.O.'s Representative for this purpose. In any case no test shall be carried out without prior approval of the S.O.'s Representative. Copies of all the test certificates shall be submitted to the S.O.'s Representative within one week after the completion of the testing.

19.3 Commissioning

One successful testing of the complete installation, the NSC shall arrange to commission the equipment in the presence of the S.O.'s Representative on a date to be decided by the S.O.'s Representative.

19.4 Rejection Of Plant

Any item of plant or component which fails to comply with the requirements of this specification in any respect whatsoever at any stage of manufacture, test, erection or on completion at site within the Defects Liability Period of the Contract may be rejected by the Superintending officer either in whole or in part as he considers necessary.

After adjustment or modification if so directed by the Superintending officer, the NSC shall submit the item for further inspection and/or test. Equipment or components with defects of such nature that, in the opinion of the Superintending officer, the requirements of the specification cannot be fulfilled by adjustment or modification shall be replaced by the NSC at his own expense and to satisfaction of the superintending officer.

19.5 Manufacturer's Catalogues And Drawings.

Manufacturer's catalogues and drawing giving detailed information on the general arrangement of the equipment and other useful details shall be submitted together with the Tender.

19.6 Recommended Spares

The Tenderer shall submit with his Tender separate Schedule of Spares recommended by the supplier of the equipment. This Schedule shall contain the price and delivery period of each item of the spares recommended. The Tenderer shall also recommend the quantity of each item to be stored for the purpose of maintenance. The prices of these spares shall not be included in the total Tender Price and the purchase of all or any of the spares listed shall be at the option of the Superintending officer. The price quoted shall be valid for acceptance during the Contract Period (extended if applicable) of the project.

19.7 Performance

The NSC shall demonstrate the correct operation of all mechanical aspects of the equipment, the correct operation of all controls and generally prove the installation in complete.

19.8 Records

A record shall be kept of the readings of all fixed and temporary instruments and gauges immediately before and after each running' test and at reasonable intervals (in proportion to its duration) during each test. The record of readings taken at intervals for a period after certain test shall be kept. The ambient temperatures and other relevant data shall also be recorded in each case.

A record shall be kept of any evidence during testing of faulty Operation of (or Usual occurrence in) either the equipment included in this Sub-Contract or any associated equipment.

19.9 Repeat Test

Should one or more of any series of tests results in the failure of the installation or any parts of it to perform in accordance with the requirements of the specification or guarantees the installation shall be deemed to have failed in initial test in that respect. The NSC may then request the S.O. to amend the testing programme to allow time than or later for modifications of adjustments to the installation to overcome the defect.

The S.O. will make such alterations to the testing programme as is reasonable for this purpose and the unsuccessful test series shall be reperformed after the modifications and adjustments have been made. The S.O. may at his discretion, require the re-performance of all or any of the other tests that were carried out prior to the making of modifications and adjustments.

Should the installation again fail to perform in accordance with the requirements of the Specification and guarantees during the first or any further re-performance of a series of tests, the granting of permission to make further modifications and adjustments and to make further re-tests shall be entirely at the discretion of the S.O.

The NSC than bear the full cost of conducting all such further re-tests, including the reimbursement to the S.O. and other essential participants of their cost incurred in being present at and/or providing for such re-tests.

20.0 Service & Maintenance

General

The Defects Liability Period shall be as stated in the Condition contract.

20.1 Scope

During the Defects Liability Period, the NSC shall make at least one inspection of the installation each month and at the time of such inspection shall perform routine maintenance including the following services listed: -

- i) To lubricate all parts as recommended by the equipment manufacturers.
- ii) To top up all hydraulic oil as recommended by the equipment manufacturers.
- iii) To clean all parts those are inaccessible to the users.
- iv) Make all-other checks as recommended by the equipment supplier.

20.2 Report

The NSC shall submit to the S.O. one month before the end of the Defects Liability Period a full report with test and check list of the complete installation detailing the condition of each equipment. The NSC shall supply all labour, materials, tools and parts necessary to rectify the defects.

20.3 Repairs

The NSC shall, at the request of owner, send a competent person during the NSC normal working hours immediately as is available, at times other than those of the inspections and servicing herein before described, for the purpose of adjusting or rectifying any fault. The Owner shall notify the NSC of any fault in the proper operation of the plant or equipment as early as possible after occurrence thereof. No extra payment shall be required for additional visits or servicing required under this Clause.

20.4 Competent Person

The NSC shall ensure that all servicing, maintenance and repairs carried out under this Contract are performed by competent person shall, if so required inform the Owner of the name of such person or persons.

20.5 Spares

Additional material and labour required shall be furnished by the NSC at normal selling prices and rates of wages. The NSC shall carry sufficient spares at all times. These shall include all consumable items such as fuses, fluorescent tubes and bulbs.

20.6 Services Excluded

Services excluded during the Defects Liability Period are attendance to daily switching operation for normal running of power equipments and plant.

20.7 Services Contracts

The NSC shall quote the cost of subsequent service contracts for a period of 24 months from the date of expiry of the Defects Liability Period. This quotation shall include complete details of the work e.g. period of service, work schedules etc. The price of this quotation shall not be included in the total tender price but shall be binding in the NSC should his services are required by the Hospital Authorities during that period.

20.8 Record Drawings

Within a month after practical completion of the project, the NSC shall submit to the Superintending officer one set of true to scale negatives (155/165 gm/sq/m) and four sets on prints of each of the approved working drawings with modifications as carried out during erection and other drawings deemed necessary by the Superintending officer for record and maintenance purposes.

All drawing submitted by the NSC shall have the following particulars at the lower right hand corner, in addition to the manufacturer's name, date. scale, drawing number and title:-

JABATAN KERJA RAYA CAWANGAN ELEKTRIK

Contract No:.....

Tender No:.....

Technical Specification - Operation Table

Nos.	Technical Requirements	Offered	Remark
1.0	Brand		
2.0	Model		
3.0	Conformity to standards		
4.0	Water proof/ splash proof?		
5.0	Radiography suitability for use with: i). Portable X-Ray Machine ii). C-arm Image Intensifier		
6.0	Suitability for type of surgical (Procedures e.g. kidney etc.) (Please state)		
7.0	Movements Type A		
7.1	Adjustment position (Minimum requirements) i) Trendelenburg position ii) Reverse Trendelenburg iii) Height adjustment (without mattress) Minimum height Maximum height. iv) Lateral tilt Head section adjustment Leg section adjustment v) Table top rotation about central axis		

8.0	Table Top		
8.1	Type A a). No. of sections b). Removal leg section? c). Removal head section? d). Removal back section? e). Radio translucent?		
9.0	Material (of construction)		
9.1	Type A a). Chassis b). Column c). Table Top Pad d). Table Top Pad e). Side rails f). Base g). Clamps h). Insertion parts		

Schedule Of Special Tools Gauges etc.
For Normal Maintenance

Equipment Name:

NOS	DESCRIPTION	TOTAL QTY.

Please attach additional sheets if required.

Signature:.....

Name of Tenderer :.....

Official Stamp:

Date:.....

Schedule Of Other Equipment Accessories And Works

NOS	DESCRIPTION INCLUDING QUANTITY	RM

Please attach additional sheets if required

This price must agree with the price stated in of schedule of Rates and Prices.

Signature:.....

Name of Tenderer:.....

Official Stamp:

Date:.....

Statement Of Compliance With Specification & Drawings etc.

We declare that the equipment offered are in just conformity with the Specifications & Drawings except for the following details listed below: -

NO. ITEM	CLAUSE OF SPECIFICATION / DRAWING NO.	DETAIL OF COMPLIANCE

Please attach additional sheets if required.

Signature:

Name of Tenderer:

Official Stamp:

Date:

Schedule Of Recommended Spares

The following are the recommended spares for the equipment and available from local stock or * from stock held elsewhere.

The prices quoted are not delivered to site and shall be firm for period of two (2) years from the date of completion of the Contract Defect Liability Period.

Equipment Name:

ITEM	DESCRIPTION	QTY	PRICE PER UNIT	LOCATION

*Please state the location

Attach additional sheets if required.

Signature:

Name of Tenderer:

Official Stamp:

Date:

Services & Maintenance

Equipment:.....

Our Tender for the Contract works is accepted in part or in full if so desired to by the Government no shall enter into a contract with government to provide Service and Maintenance as per details attached the equipment for a period of three (3) years at the fixed rate% of the full or part of an Tenders Prices.

The service and maintenance will commence on completion of the contract Defects Liability Period and will be provided in accordance with the specification any other requirements as per details attached for the particular type of plant and equipment installed.

The above prices includes all costs except replacement parts which will be charge for separately at the rates nominated in the schedule of recommended spares.

Signature:

Name of Tenderer:

Official Stamp:

Date: