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## **SECTION 5.3 SPECIFICATION FOR COMPREHENSIVE SERVICE AND MAINTENANCE OF THE WET RISER SYSTEM AND ANCILLARY EQUIPMENT**

### **1 GENERAL**

The work covered by this Specification is for the supply of all materials, appliances, labour and necessary incidentals for the service and maintenance of the Fire Fighting System and Ancillary Equipment.

All work to be performed under this Specification shall be in accordance with the commercial practice, and must be in strict accordance with this Specification.

### **2 WORKMANSHIP AND MATERIALS**

The work described in this Specification shall be performed by workmen skilled in the service, maintenance and repair of Fire Fighting System and Ancillary Equipment of all types, and shall be executed in accordance with the best commercial practice.

All materials to be supplied in connection with work under this Specification shall be new and unused, and shall generally be of the best quality as regard manufacture and performance.

### **3 SUPERVISION**

The Contractor shall have a Foreman in charge of the service, maintenance and repair work to be carried out under this Specification. This Foreman must be thoroughly competent in supervising the service, maintenance and repair of the Fire Fighting System and Ancillary Equipment of all types and shall be in the direct employ of the Contractor, and acceptable to the Superintending Officer.

The Contractor shall have in his direct employ, workmen who are especially skilled in the service, maintenance and repair of Wet Riser System and Ancillary Equipment of all types.

### **4 SCOPE OF WORK**

All machinery and equipment comprising the complete Wet Riser System and Ancillary Equipment shall be serviced and maintained.

The service and maintenance of the complete Wet Riser System and Ancillary Equipment shall be in strict accordance with the Servicing and Maintenance Schedule as set out in clause 5.10 below.

The Contractor shall advise the Superintending Officer of any defects in any part or parts of the complete Wet Riser System and Ancillary Equipment observed during routine inspection and service, and shall repair such defects if required to do so by the Superintending Officer.

The Contractor shall also provide emergency repair service during normal working hours and also during overtime hours if required to do so by the Superintending Officer.



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## **5 CONSUMABLE MATERIALS**

The Fire Fighting Contractor shall supply the following consumable materials as and when required:-

1. All pump gland packing.
2. All carbon brushes required to replace worn brushes in electric motors.
3. All electric contact points required to replace worn electric contact points in switch gears, motor starter gears, electric control gears and electric relays.
4. All cotton waste, soap detergent and other cleaning materials required for cleaning purposes.

The costs of these consumable materials shall not be charged for separately by the Contractor, but shall be included in the fixed monthly rate quoted by the Contractor for the Service and Maintenance of the Complete Wet Riser System and Ancillary Equipment.

## **6 REPAIRS**

The Contractor shall repair defects in the complete Wet Riser System and Ancillary Equipment on the instructions of the Superintending Officer. The costs of such repair shall not be included in the fixed monthly rate quoted by the Contractor for the Service and Maintenance of the complete Wet Riser System and Ancillary Equipment but shall be charged for separately by the Contractor.

All repairs on the complete Wet Riser System and Ancillary Equipment shall be guaranteed by the Contractor against defects in workmanship and materials for a period of one year to take effect from date of completion of repairs. During the guarantee period the Contractor shall rectify defects in repairs carried out by him with no additional charge to the Government.

## **7 SERVICE AND MAINTENANCE RECORDS**

1. The Contractor shall provide a service and maintenance record book for the complete Wet Riser System and Ancillary Equipment being serviced and maintained by him. This record book shall be kept in the plant room of the Wet Riser System and Ancillary Equipment being serviced and maintained, and brief details of all service, maintenance and repairs carried out on the complete Wet Riser System and Ancillary Equipment shall be entered by the Contractor into this book for checking purposes. The address and telephone number of the Contractor's service station shall also be entered into this record book to facilitate emergency service calls.
2. The Contractor shall also keep an accurate detailed record in duplicate of all service, maintenance and repair work carried out by him on the complete Wet Riser System and Ancillary Equipment. This record shall be in the form of a Maintenance/Repair Sheet, and shall be countersigned by the Superintending Officer each time the Wet Riser System and Ancillary Equipment is attended to by the Contractor.



## 8 **RATES FOR SERVICE AND MAINTENANCE**

The rates for the Service and Maintenance of the complete Wet Riser System and Ancillary Equipment shall be as shown in the Schedule of Prices for this Contract.

These rates shall be quoted for by the Contractor at the time he submits his tender, and shall hold good for the period of **THREE years** commencing from the end of the warranty period. The Contractor may be required to enter into a contract for the above period with the Government on the Standard Form of Contract for Service and Maintenance of Wet Riser System and Ancillary Equipment (a copy of this Standard Form may be inspected at the Office of the Pengarah Kanan, Cawangan Kejuruteraan Mekanikal, Ibu Pejabat J.K.R. Malaysia, Kuala Lumpur.

## 9 **PAYMENTS**

Payments shall be made in accordance with Clause 24 of the Conditions Of Contract, but bills presented for payments must be accompanied by a full statement and substantiated by one copy of the individual maintenance/repair records required under paragraph 7(2) of this specification.

## 10 **SERVICING AND MAINTENANCE SCHEDULES**

The Contractor shall inspect and service the machinery and equipment comprising the complete Wet Riser System and Ancillary Equipment at the above premises periodically as scheduled in the check list except where otherwise directed by the Superintending Officer.

The check list is in no way exhaustive and shall not in any way relieve the Contractor from executing any other work necessary to ensure the efficient functioning of the Wet Riser System and Ancillary Equipment.

The Contractor shall report in writing to the Superintending Officer any defect/s observed in any part or parts of the complete Wet Riser System and Ancillary Equipment. The report shall state the cause/s of the defect/s observed, and shall include an estimate of the cost of repairs required.

No	Item	Frequency			
		Every Month	Every 3 Month	Every 6 Month	Every Year
1	<b>WATER PUMPS</b>				
a	Check all pump mechanical seals for leaks (for pump gland leakage rate is a maximum of 10 drops per min if not specified by the manufacturer). Adjust, re-pack and replace pump glands or mechanical seals as necessary.	X			
b	Check all pump bearings for excessive noise, vibration and wear. Lubricate with oil or grease or replace if necessary.	X			



No	Item	Frequency			
		Every Month	Every 3 Month	Every 6 Month	Every Year
c	Check the alignment and condition of all rubber couplings between pumps and driving motors, and rectify as necessary.	X			
d	Check all bolts and nuts for tightness, and tighten as necessary.		X		
e	Check the correct cut-in and cut-out of auto mode operation of the pressure switch and adjust as necessary.	X			
<b>2</b>	<b>ELECTRIC MOTOR</b>				
a	Check all motor bearings for excessive noise and vibration and wear. Lubricate with oil or grease or replace if necessary.	X			
b	Check carbon brushes and slip rings of all motors, and clean as necessary. Renew carbon brushes as necessary.			X	
c	Check safety devices fitted to all motors. Clean, adjust and lubricate as necessary.	X			
<b>3</b>	<b>SWITCHBOARD</b>				
a	Inspect and check the routine operation of all electrical starters, electrical control gears, automatic switchover control gears, battery charging, relays and ancillary electrical apparatus.	X			
b	Clean or renew electric contactors as necessary.		X		
c	Renew electric fuses, LED, push button, ammeter, voltmeter and etc. as necessary.		X		
d	Inspect and test the control wiring and circuitry. Retighten, repair or replace as necessary.		X		
<b>4</b>	<b>WATER TANK</b>				
a	Check tanks for leaks & operation of ball valves & rectify if necessary.	X			
b	Check all accessories (water level indicator & wire rope, ladder, cover, electrode and etc.). Repair or replace as necessary.	X			



No	Item	Frequency			
		Every Month	Every 3 Month	Every 6 Month	Every Year
c	Inspect for sediment or sludge. Flush and clean as necessary.			X	
<b>5</b>	<b>PIPING AND FITTINGS</b>				
a	Check all water piping, valve, fitting, etc. for leaks.	X			
b	Flush out system of all dirt.			X	
c	Check air release valve (ARV) for air lock in the system & rectify accordingly.	X			
d	Check all bolts and nuts for tightness, and tighten as necessary.		X		
<b>6</b>	<b>BREECHING INLET</b>				
a	Inspect the condition of breeching box, door and lock. Repair or replace as necessary.	X			
b	Inspect the condition of male couplings, back pressure valve, blank caps (secured with chains). Repair or replace as necessary.	X			
<b>7</b>	<b>FIRE HOSE AND LANDING VALVE</b>				
a	Inspect the ease of operation and swing of each fire hose cradle. Adjust, repair or replace as necessary.	X			
b	Inspect and ensure landing valve and canvas hose are obstruction free.	X			
c	Ensure the hose is not twisted or curled.	X			
<b>8</b>	<b>DIESEL ENGINE</b>				
a	Inspect and test automatic & manual starting and also for manual stopping of the engine.	X			
b	Check all bolts and nuts for tightness, and tighten as necessary.			X	
c	Check all engine foundation for cracks and rectify as necessary.		X		
d	Check the tension of all belt drives, and adjust as necessary.	X			



No	Item	Frequency			
		Every Month	Every 3 Month	Every 6 Month	Every Year
e	Check all engine bearings and lubricate with oil grease as necessary.	X			
f	Check the alignment and condition of all rubber couplings between diesel engine and water pump and rectify as necessary.	X			
g	Check the level of the fuel, steel tube & fitting, any sludge and sediment at the diesel tank.	X			
h	Check the fuel pump filter. Clean or replace if necessary.	X			
i	Inspect and check condition of battery, fittings and connection as necessary.			X	
<b>9</b>	<b>BASEPLATE</b>				
a	Check all bolts and nuts for tightness, and tighten as necessary.			X	
<b>10</b>	<b>SUPPORT AND HANGER</b>				
a	Check the condition of all support, brackets and hangers. Rectify or repair as necessary.			X	
<b>11</b>	<b>SIMULATION TEST</b>				
a	Test run all pumps (duty, standby and jockey) for:-  i. automatic and manual mode inclusive of starting & stopping  ii. automatic changeover operation (power failure test)	X			
<b>12</b>	<b>PAINTING</b>				
a	Check overall painting and repaint if necessary.			X	

# **11 SCHEDULE OF RATES FOR THE COMPREHENSIVE SERVICE AND MAINTENANCE**

The tenderer is to note that the cost quoted for this shall not be included in the tender price but quoted separately in the table below and it will be binding in the event that the Government decides to accept them immediately after the guarantee period.



These rates should not be subjected to variation for the period of 3 years after the free maintenance period.

**The tenderer shall quote the rate in Section 8.5**

----- **END OF SECTION 5.3** -----