
Technical Specification

Comprehensive Annual Maintenance contract of RAVEL Make/Honeywell Make and Automatic Fire Detection and Alarm system installed at various locations of IZN division.

1- Scope of AMC:-

This AMC covers Comprehensive maintenance and upkeep of hardware, software and peripheral Equipments of AUTOMATIC FIRE DETECTION & ALARM SYSTEM (AFDAS):

It also includes periodical visits, preventive & breakdown maintenance and modification/up-gradation of hardware/software as per policy guidelines issued from time to time by RDSO/Railway Board/ Zonal Railway HQ or Divisional HQ to overcome any deficiency noticed in working of the system to improve reliability of the system at the contractor's cost unless specified otherwise.

This AMC includes repair/replacement of defective cards/modules/ subsystems etc. This AMC also covers minor modification and alteration to the working system required to remove any deficiency noticed in working of the system to improve reliability.

During AMC period, all the materials required for satisfactory functioning of the system, spares as required will be supplied by the contractor at his own cost. Only OEM manufactured/recommended spares shall be used. RDSO Guidelines regarding spare will be applicable. If required, Railway will provide space to keep the spares near the equipment. Suitable cabinet will be provided by the contractor to keep the spares at his own risk and cost.

This AMC also covers the training content of Railway staff as nominated by Sr DSTE. First training module should be arranged in each depot of SSE/Signal in-charges, in first quarter of AMC. After that one training module shall be held by the Contractor once in six months at all of the SSE depots over concerned division. It should be monitored by service Engineer in co-ordination of Railway supervisor. Record of the training imparted shall be maintained in a register whose format will be issued by Sr.DSTE of the division.

2- Deployment of Service Engineer:-

Service Engineer deployed by the contractor shall be Technically Competent, Well Conversant and fully equipped for carrying out all activities as described in Scope of work so that he is able to attend various failures independently with optimum utilization of time and minimizing the duration for opening of relay room as well as impact on train operation in an expeditious and rational Manner.

Maximum number of stations/system for AMC under one Service Engineer, location and their jurisdiction will be decided by Sr. DSTE depending on the time consumed in the periodical maintenance/ breakdown maintenance and the geographical spread and it should be clearly mentioned in the tender document. The Service Engineer employed should be exclusively for the Purpose of Scope of Work as per AMC conditions and should not be utilized for any other purpose such as installation/maintenance of other Equipments/locations.

Contractor shall provide details of Service Engineers (name along with qualification, work experience and contact details) exclusively engaged for the said work in his AMC Offer to Sr.DSTE/Engineer-in-Charge. Any change in Service Engineer shall be done with the consent of Sr.DSTE/Engineer-in-Charge.

The qualification of Service Engineer should be minimum Diploma/graduate Engineer in accordance with GCC. These service Engineers must possess adequate experience of not less than 02 years in the same field so that they are able to carry out effective preventive and predictive maintenance along with timely rectification of partial and complete system failure.

If at any point of time Railway finds, that the deputed Service Engineer/s lacks the requisite technical competence as is expected from them for efficient execution of AMC or finds the behavior of the Engineer/s as improper, indecent, the firm shall be bound to replace the Engineer promptly within a time period of not extending two weeks from the date of advise to the firm to this effect otherwise the Deputed Engineer shall be treated as absent from work and penalty/fine shall be imposed in accordance to para No. 6 and this may be considered to constitute willful/ persistent disregard to instruction of Railway Engineer-in-charge of the work.

Normally, all the deputed service engineers shall remain present in their respective Head Quarters or in the respective sections as per the requirement of Railway.

The signal control in-charge/sectional in-charge/suitable person (monitoring authority) deputed by Sr. DSTE shall ensure the all time presence of all field engineers in their respective Head Quarters or in the respective sections as per requirement of AMC and shall accordingly closely monitor their movement as per requirement of Railway. They shall also maintain attendance for this purpose. The field AMC Engineer shall keep the monitoring authority informed of his movement.

The firm shall arrange competent engineer (having adequate technical competence) as replacement before granting any leave or permission to leave their allotted Headquarter/section to any field engineers after taking the consent of Railway representative thus ensuring presence of field engineers at all times in all nominated Locations or in their Respective Section over the Division.

The Service Engineers nominated by the contractor should contact the SSE/Control in the division every day and give their movement and acquaint themselves with the failures of Equipment at stations.

In case of absence of any field engineer without arranging his substitute/reliever engineer 'absence penalty' on the basis of per day per engineer will be imposed and recovered from bill. For maintaining less than requisite engineers at a time 'absence penalty' on the basis of per day per engineer shall be imposed in accordance to para No. 6 and recovered from the next bill.

Contractor Shall Deploy Service Engineers at **FGR, KSJ, KPV, IZN, LKU, PBE Stations.**

3- Register&Forms:-

To maintain record of the assets under AMC and the regular/periodical/preventive maintenance and break-down maintenance carried out, Register & Forms as described herein shall be maintained at places mentioned below of AMC.

Control Log Register (FORM-A) : This is to be maintained at Divisional control office. The purpose of this register is to maintain log of complaints for breakdown of equipment so that service engineer can attend & rectify the defect promptly. The entries are to be Made in format approved by Sr.DSTE/Engineer-in-Charge. Sample format(s) for guidance is appended below:

CONTROL LOG REGISTER

FORM-A

S.N.	Station	ID of equipment under failure/breakdown	Date/Time Failure Reported	Mode of communication about failure/break down	Registration/Docket No. of breakdown	Date/Time Attended	Date/ Time of Rectification	Time taken to attend the failure
1	2	3	4	5	6	7	8	9

Failure/Break down information Register (FORM-B) : This is to be maintained at site. The purpose of this register is to maintain the record of rectification of the defect, i.e., nature of defect, time consumed in rectification with joint signature of Railway & contractor's representative. The entries are to be made in format approved by Sr.DSTE / Engineer-in-Charge. Sample format(s) for guidance is appended below:

FORM-B

FAILURE/BREAKDOWNINFORMATIONREGISTER

S.N.	Station	ID of Equipment Under failure/breakdown	Date/ Time Failure Reported	Mode of communication about failure/breakdown	Registration/Docket No.of breakdown	Date/Time Attended	Date/Time of Rectification	Time taken to attend the failure	Excess time taken to attend the failure than allowed time	Remarks(Nature& duration of failure, Action taken for rectification)	Sign of Railway representative	Sign of Contractor's representative
1	2	3	4	5	6	7	8	9	10	11	12	13

Maintenance Register (FORM-C):This is to be maintained at site. The purpose of this register is to maintain the activities during periodical/ regular/preventive maintenance and break-down maintenance.This register also indicate that time consumed to repair after breakdown is genuine & justified or not. The entries are to be made in format approved by Sr. DSTE / Engineer-in-Charge. Sample format(s) for guidance is appended below:

FORM-C

Maintenance Register

S.N.	Station	ID of Equipment	Routine Maintenance or Breakdown	Defect Noticed	Components repaired	Components replaced	Time consumed in repair more than stipulated	Reason for not being repaired with in stipulated time of 12 Hrs	Whether reasons are justified (Yes/No) to be recorded by SSE/JE	Remarks of ADSTE of the Unit
1	2	3	4	5	6	7	8	9	10	11

Testing of parameters measured after repair & maintenance activities (Form-D): This form is to be maintained at site, which bears parameters tested after carrying out repair & maintenance activities. It shall be as per testing formats prescribed in **pre-commissioning check list** of the equipment issued by RDSO or format issued by Sr DSTE. Parameters shall be within specified limits

Health of the EMI shield, SPDs etc. as applicable, are to be maintained and earth value, health of SPDs etc. shall be measured/recorded by the Service Engineer in a register on format approved by Sr. DSTE.

Status of Spares (Form-E): This format is to be maintained at the office of SSE/Signal (In-charge) & with each service engineer deputed for AMC. Purpose of this format is to maintain minimum service level (Quantity) of specified spares & shall always be available during currency of contract. Both the Registers will be reviewed by concerned SSE every month & DSTE/ASTE quarterly.

FORM-E

STATUS OF SPARES/ BUFFER STOCK

SSE/SIGNAL/.....

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S.N.	Name of the spare	Total Population	Minimum Service level to be maintained	Quantity available With concerned SSE/Sig in-charge of the depot	Unit	Signature of contractor	Signature of SSE/Signal
1	2	3	4	5	6	7	8

Note: Buffer stock for spare shall be ensured minimum 5% always (Subject to minimum one).

4- Execution:-

The contractor shall have a 24X7 Single Point of Contact (SPOC) which shall be called by the divisional control, sectional SSE/JE/Signal Maintainer in case of equipment failure. The SPOC will provide a docket number whenever a complaint is lodged with them. Control will maintain the failure information in FORM-A. Failure & breakdown position in FORM-B shall be maintained at site. The SPOC shall have WhatsApp facility also so that complaints can be posted on WhatsApp as well as informing him over phone. In case of SPOC number is not reachable, one alternate number to be provided by contractor/firm who shall be contacted for reporting failure/breakdown. It will be responsibility of the firm's SPOC to send his representative (Service Engineer) to site of failure for rectification of failure in such a way that service engineer shall reach at the site of failure within stipulated time. SPOC will communicate the daily movement of his representative (service engineer) to Divisional control over phone & WhatsApp also.

Periodical visit for maintenance shall be at least once in 30 days and according to the maintenance manual provided by manufacturer of the equipment. Parameter of items test / maintenance shall be recorded in FORM-D against standard/nominal values/range. Record of periodical maintenance (FORM-C) shall be available at station concerned. Periodical maintenance is defined for individual system, not for the section. If any system misses its due date of periodical maintenance (as specified in the tender), it will be treated as delay.

The contractor shall attend the breakdown or failure site within specified time after communication of date & time of failure. If he fails to attend the failure site within stipulated time, a penalty will be charged as mentioned in penalty clause. After reaching at site, Company Engineer shall convey the nature of failure and expected time of rectification to Railway as well as the in-charge head of his own company. Maximum specified time to reach / attend the failure site:

Type of Equipment	Maximum specified time
AUTOMATIC FIRE DETECTION AND ALARM SYSTEM (AFDAS):	4 Hours

If service engineer fails to rectify the defect in expected time, the reason must be recorded in FORM-C and reasonableness of extra time consumed in rectification of failure time will be recorded by SSE/Signal and remarks offered by ADSTE concerned. Sr. DSTE will take final decision and his decision shall be binding upon the contractor, whether extra time consumed is reasonable or not. If unreasonable time is consumed by service engineer, penalty will be charged for delay in rectification of failure as mentioned in penalty clause.

In case of dispute regarding type of defect/failure of equipment, decision of Sr.DSTE will be final and binding upon the contractor. A joint report of concerned SSE/Sig and contractor's representative with remark & counter signature of concerned ADSTE there upon shall be put up to Sr.DSTE. There shall not be any delay in rectification on this account.

The contractor shall arrange transportation of their maintenance personnel, tools & plants, spares etc. from their headquarters/ service centre to the site of work and no extra payment shall be made by the railway towards the same. The contractor shall make all out efforts to quickly reach the site of breakdown or failure and rectify the breakdown or failure in the quickest time possible.

There is no limit on the number of calls/visits required during Breakdown and Restoration of the system for the fault rectification. In case of odd hour's failures and emergencies even on holidays and Sundays, normal service shall be rendered by the firm. The Emergency Services shall be available on 24 X 7 basis and the complaint can be lodged at the specified number given by Firm/Contractor.

In the event of strike or lockout or any other labour upheaval in the firm, service shall be made available by the firm to attend to urgent failures.

If the breakdown/failure continues for **more than specified time** after reaching/ attending the service engineer, reason for the failure shall be recorded in FORM-C kept at site. A Detailed special report additionally covering technical and non-technical aspects regarding rectification etc. shall be submitted to Railway (Sr. DSTE) by the Contractor or OEM.

AMC engineer will visit the station for scheduled periodical maintenance (as specified in the tender) to clean, check, test, adjust all components of the system (hardware and software), to record all parameters for proper functioning of modules, part & complete system. This is mainly for preventive maintenance to avoid occurrence of failures. All the maintenance activities and measurements of parameters must be recorded in FORM-D with signature which will be kept at stations. He has to do complete technical audit of the system as per Pre-commissioning check list jointly with the Railway representative. All maintenance activities should be carried out in the presence of Authorized Railway representative by Service Engineer with good workmanship to the satisfaction of Railway Administration/Official ensuring safety of train and maintenance personnel. If AMC Engineer has visited and attended the failure of the system, he has to do complete preventive maintenance activities and his next due for preventive maintenance will be after stipulated time (unless otherwise specified).

The Contractor/Firm have to follow the defined periodical maintenance schedule. Under exceptional circumstances (based on local conditions, technical & administrative requirements and other reasonable factors), Sr. DSTE may relax the period of scheduled maintenance for few days (Not more than 7 days). Even if, the Contractor/Firm misses the scheduled periodic maintenance beyond this period, then the penalty will be calculated from 7th day after previous maintenance date as the case may be.

5- Spares/Repaired spares:-

During the AMC period if any cards/ modules etc. becomes defective for which RDSO specification and approved sources are available, the Contractor shall replace that with RDSO approved card/modules only. If RDSO specification and approved source is not available, the component shall have “Guarantee cum Test/Inspection Certificate of OEM”

To fulfil this, the Contractor/firm shall maintain a buffer stock of spares “Guarantee cum Test/Inspection Certificate of OEM” for AFDAS for which responsibility shall be of Contractor/firm. Buffer stock of spares shall be available with the Service Engineer representative of Contractor/firm who will maintain separate ledger/record for the buffer stock of spares. Similar record for the spares shall also be maintained by SSE/Signal(In-charge of the section) and endorsement of availability of working spares shall be made in both the register by SSE/Signal on monthly basis & sectional ADSTE/DSTE on quarterly basis.

Buffer stock will be minimum 5% of total population of each Module / PCB / Cards / sub systems / parts / components or any other item like Modem etc. (subject to minimum one) and shall be available with each Service Engineer of contractor at all the time as per para 5.2 to eliminate the failure. At any point of time, if it is found that spares are not available in specified quantity, Deficient spare penalty will be imposed as mentioned in penalty clause.

In case of urgency, if spares are taken by firm from Railways, these will be issued by Railway as per availability in the interest of safe and punctual running of trains, but with imposition of penalty equal to two times ‘Deficient spare Penalty’ per unit per day till the date of return irrespective of the cost of the spare. For this purpose, suitable record shall be maintained by concerned ‘Sr. Section Engineer In-charge’ on daily basis. Railway representative may check or cross check the availability of working spares at any time. ‘Deficient spare penalty’ (Defined in penalty clause Para No. 6) shall be recovered in the next due bill or from other deposits.

The warranty of defective cards repaired by the firm shall be of minimum of 12 months.

The repaired cards are to be returned to the Railways within fortnight from the receipt of cards. The Repaired /Replaced Modules should have the same performance as that of original. No claim of defective Main Equipment and Associated equipments which were part of previous AMC shall be accepted by the Railway in case the previous AMC of equipment under AMC was being executed by same firm.

The Contractor/firm shall be responsible for maintenance of the proper health of the Spares. During the AMC period, the Contractor/firm shall ensure that all spares are in good fettle.

6- Penalty Clause:-

Purpose of AMC is to keep the equipment in proper working order so that it shall give continuous service without fail. Any non-compliance of terms and condition will lead in Disruption of Signaling system which will ultimately affect the train operation, Therefore, following penalties shall be imposed for non-compliance of terms and conditions mentioned in the guidelines,

S. N.	Reason for Penalty	PENALTIES TO BE RECOVERED FROM EXISTING BILL OF CONTRACTOR/FIRM
		AUTOMATIC FIRE ALARM DETECTION SYSTEM(AFADS):
1	ABSENCE PENALTY PER DAY: Absence by any Service Engineer without arranging his substitute/ reliever Engineer	200% of the maintenance Charges per day for the equipments being maintained by service Engineer
2	Penalty for late arrival at failure site: If Service Engineer fails to attend the failure site within stipulated time, a penalty will be imposed as mentioned on the monthly AMC charges of equipment.	0-4Hrs.:StipulatedPeriod. 04-14 Hrs.: 15% of monthly AMC Charges. 14-24Hrs.:50%ofmonthlyAMCCharges. >24Hrs.:100%ofmonthlyAMCCharges.
3	Penalty for unreasonable time consumed in rectification after reaching at failure site will be imposed on the monthly AMC charges of equipment. (As decided by SrDSTE)	0-4Hrs.:GracePeriod 4-8 Hrs.: 10% of monthly AMC Charges of the equipment.8-12 Hrs.: 25% of monthly AMC Charges of the equipment. 12-16Hrs.:50%ofmonthlyAMCChargesoftheequipment. >16Hrs.:100%ofmonthlyAMCChargesoftheequipment.
4	Penalty for non/less availability of each type of spares of buffer stock. (Deficient spare penalty)	Rs.500.00 per day for each type of spare.
5	Penalty for delay in replacement of defective standby Components/ Cards/ Modules within 7 days after being informed by Railway Administration	5 % of the per day AMC charges for per day delay after 7 th day of that equipment.
6	Penalty for missing the periodical schedule of maintenance of equipment	5% of the per day AMC charges for per day delay after 7 th day of scheduled date of that equipment.

7- Performance: If performance of AMC is not satisfactory as decided by Sr. DSTE, contract will be terminated on contractor's account & necessary action will be taken as per GCC clause.

8- Other Conditions:-

The Contractor/ firm shall issue laminated photo identity cards to the Service Engineer /Technicians/Maintenance staff who will be authorized to undertake maintenance work in Railway premises. Cost of the identity card shall be borne by the Contractor/firm. The Service Engineer/Technicians/Maintenance staff shall carry Railway materials only with Challan or authorized documents.

The Contractor/firm shall maintain a History Sheet of all cards and modules existing or replaced for each equipments at stations. Whenever cards/modules are replaced/repared, the same shall be updated in the History Sheet of the equipment under AMC.

AMC can be terminated at any time by Railway without giving any reason and the payment upto date of termination will be released to the contractor by Railway. Further in case of any damage, or any kind of loss including both material or database/software owing to negligent or careless working/ repair/ maintenance or due to willful disregarding/bypassing of the railway's instruction by the Service Engineers deputed by the firm or by virtue of being technically incompetent/unsuitable to carryout the work, the firm shall be liable to undo the damage/loss or to pay for the pecuniary loss. The decision of Sr. DSTE in this regard shall be final and binding.

Any special condition stated by the Contractor/firm(s) in the covering letter submitted along with the tender shall be deemed to be a part of contract to such extent only as have explicitly been accepted by the Railways.

Different penalties referred above for various lapses shall be indicated in tender document by the tendering authority.

Other conditions like GCC, SCC (except technical) etc. remains as per prevailing rules & regulations etc. Sr. DSTE may add other technical conditions, if considered necessary for improving reliability and availability of Equipments covered under AMC as well as transparency of contract.

The contractor shall carry out the preventive and breakdown maintenance, testing and measurement of parameters in such a manner so as not to endanger the safety of trains, passengers, railway and contractor's personnel.

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