

महानिदेशालय, भा.ति.सी.पु.बल / Directorate General, ITBP Force
(संभरण निदेशालय-एम0टी0 डैस्क / Provisioning Dte-MT Desk)
गृह मंत्रालय-भारत सरकार / MHA-Government of India
खण्ड-2, के.स.का. परिसर/Block-2, CGO Complex
लोधी रोड, नई दिल्ली-03/Lodhi Road, New Delhi-03
(Fax 011-24364267, Email-digprov@itbp.gov.in)

No. IV-15021/05/2013/Prov(MT)- 1249

Dated: 15/05/18

To,

The DsG/Director

BSF, CRPF, CISF, SSB, AR (Through LOAR), NSG, BPR&D, NIA and IB

Subject:- Quality Requirements (QRs) and Trial Directives (TDs) of Track/Roller Chain based Motorized Excavator.

The QRs and Trial Directives in respect of Track/Roller Chain based Motorized Excavator as per Annexure "A" and "B" duly approved by the Competent Authority in ITBP with reference to MHA order No. 11012/02/2009-Fin-I/Prov.I - 17 dated 02-01-2018 is enclosed herewith for information and necessary action at your end, please.

Encl: As above.

उप महानिरीक्षक(संभरण)/DIG (Prov)

Copy to:

1. The DS(Prov), PM Division, MHA/ GOI, Jaisalmer House, New Delhi - for information with the request to upload the QRs and TDs of Track/Roller Chain based Motorized Excavator on the MHA website.
2. The Dy Inspector General (Proc), Dte Genl, ITBP.
3. The Dy Inspector General (L&C), ITB Police .
4. The Commandant, TPT BN, ITB Police.
5. The DC (IT), Dte Genl, ITBP- Final QRs/TDs of Track/Roller Chain based Motorized Excavator may please be uploaded on ITBP Website.

For information alongwith copy of QRs and TDs of Track/Roller Chain based Motorized Excavator.

IT Cell

SO(EDP)

Alant

उप महानिरीक्षक(संभरण)/DIG (Prov)

उप सेवानी (आई0टी0)/Dy. Comdt.(IT Cell)

डायरी नं० / Dairy No.....1681.....

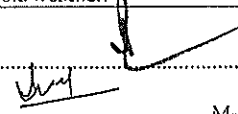
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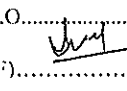
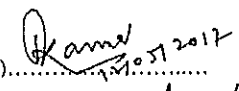
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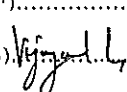
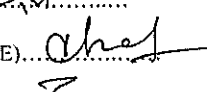
Fresh ORs/Specification in r/o "Track/Roller Based Motorized Excavator"

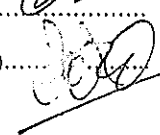

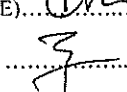
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S.No	Parameter	Q.R./Specification
1	General	The Track/Roller Chain Based motorized excavator will be employed for excavation, digging, demolition and finishing job at the inclement weather with temperature ranging from machine should be able to operate upto minus 20 deg centigrade at the height/altitude ranging from MSL to 19500 feet. The equipment shall be rugged and of sturdy construction, capable of working continuously in the tough terrain and geographical condition and easy to transport in available resources
2	Engine	Four cylinder, four stroke, water cooled, naturally aspirated or turbocharged diesel engine of reputed make such as Komatsu/ ISUZU/ BEML/ Kirloskar/ Cummins/Tata or of a reputed make conforming to ARAI/BIS/BS/DIN/SAE standards 10000:10002 and should have cold starting kit to start engine upto 20 degree Celsius.
3	Engine Power	Not less than 54HP @rated RPM.
4	Fuel	Diesel
5	Fuel Tank Capacity	Minimum 120 ltr.
6	Brake System	i) The machine should not operate without movement of lever. ii) Parking brake should be provided. The equipment should not operate when parking brake is applied.
7	Ground Clearance	Minimum 350 mm
8	Main Frame/ Chassis	The main frame shall be very strong and of rigid construction. The cabin floor shall be attached to the main frame by flexible mountings. The main frame of the chassis shall be made of cast/fabricated steel components of the high stress areas of the attachment. This should ensure even distribution of forces into steel structure. The frame should be robust enough to take extreme working stresses throughout the life of the hydraulic excavator. The frame shall be mounted on the fully hydrostatic type track drive. The travel mechanism shall be fitted with lifetime lubricated track rollers, idlers and sprockets with floating seals.
9	configuration	i) The tracked excavator will have two main section. The undercarriage and super structure. The undercarriage will include the dozer blade(detachable size minimum of 1.5 meter wide & 0.45 meter height and fully welded steel) tracks, track frame and final drive. The super structure should be attached to the undercarriage in a way allowing the machine to slew 360 degree unhindered. ii) Upper roller: min 1 on each track Lower roller: min 5 on each track Track shoes: min 36 on each track
10	Hydraulic Pump	i) The main components of the hydraulic system should consists of hydraulic oil tank, hydraulic pump, control valves and filters. The control valves shall be with built in relief valves. ii) Implement circuit pressure: min 250 kgf/sq cm Swing circuit pressure: min 250 kgf/sq cm Travel circuit pressure: min 280 kgf/sq cm Pilot circuit pressure: min 30 kgf/sq cm Flow rate- main pump: min 2x60 lpm Flow rate- pilot pump: min 20 lpm
11	Operator's Cabin	It should conform to latest ISO/ergonomic standards. It should serve the intended purpose operator's safety and comfort and it should reduce injury and increase operator protection in the case of falling objects (such as a rock or piece of machinery). i) The cabin shall have two doors, floor mats, clear view in all directions. ii) The operator's seat shall be so designed to ensure easy operation of all lever positions. The seat should be adjustable, reclining type with armrest movable with or without control levers & ergonomically designed. iii) The cabin shall be well ventilated with two rear view mirrors, interior light, wipers, fire extinguisher, first aid box, fan, defogger & heating system. iv) The hydraulic excavator shall be provided with necessary lights to perform the tasks during darkness/ fog/rainy season and should be conforming to traffic regulations.
12	Electrical System	It should be 12/24 volts system and to be powered by a suitable Alternator and batteries. The complete electrical system of the hydraulic excavator shall cater for safeguards against short circuiting, over voltage and battery should be insulated/heating coil wrapped to minimize any power loss due to cold weather.

P.O. 

M-I (CRPF)  M-II (BSF)  M-III (CISF)  14.07.2017

M-IV (NSG)  M-V (SSB)  M-VI (ASSAM RIFLE) 

M-VII (ITBP)  M-VIII (REP BPR&D)  Co-Opted member- 

S.No	Parameter	Q.R./Specification
12	Instrument Panel	The instrument panel should be fixed at a convenient position for ease of operation. The following shall be invariably fitted on the instrument panel:- a) Digital Hour meter, water/coolant temp gauge, engine oil pressure gauge/indicator, fuel gauge, blocked air filter indicator, engine speed /rpm gauge, engine starting by ignition key, horn switch, switches for various lights and visible fault warning system for alternator charging. b) All the gauge in the panel shall be quickly readable and understandable. c) All instruments must be properly illuminated for night time operation . d) All audible signals shall be distinguishable from the operating point of the hydraulic excavator. e) The reflectors of the hydraulic excavator shall be visible at night from all distances within a range of 30 mtrs to 180 mts (when directly in front of lower beam of a head lamp). f) The hydraulic excavator shall be provided with warning system for low engine oil pressure and high temperature/indicator.
13	Controls	a) The Excavator shall have hydraulically assisted pilot controls for smooth & safe operation of the machine. b) All pilot levers operated to ISO control system. c) <u>Tracks</u> : Individual pilot operated foot pedal/cable or hand levers shall be provided for all functions. d) Engine stop: Through cable or with Key.
14	Travel Speed	Minimum 3 Km/hour
15	Swing system	The swing system should have a hydrostatic motor and planetary gear reduction box to achieve a swing speed of minimum 12.5 rpm or more.
16	Painting	As per requirement of user/ITBP.
17	General Requirements	a) Gearing: Gear/Roller shall be designed to have ample strength to adequately withstand wear and temperature rise. They shall as far as possible, conform to the requirements of IS: 2535-1963/DIN 3962/ international standards. Keys in gear/roller trains shall be so fitted and secured that they cannot work loose. For fitments of gears/roller to shafts at various locations, no permanent welding joint be carried out. b) Hardware Items : All the hardware items shall be galvanized/surface treated as per manufacturer's design . c) Instruction Plate/Sticker : The machine shall have instruction plate/Sticker permanently affixed at suitable location, indicating precautions and any special important procedures to be observed in operating and servicing of the machine. d) Identification Plate: The machine shall have permanently affixed to it, an anodized aluminium plate/blackened brass plate with the following details marked there on :- i) Nomenclature ii) Make/Model iii) Manufacture's name iv) Serial Number of machine v) Year of Manufacturing vi) Engine Number e) Site Condition:- Unless otherwise stated specifically the design construction and performance of the eqpt shall be under the following environmental conditions of use/storage. The Hydraulic Excavator with rock breaker attachment shall also be suitable for working in snowy & stormy desert conditions i) Temperature : Able to operate upto minus 20 deg C. ii) Altitude : Up to 19500 feet above MSL. iii) Humidity : 100% irrespective of temperature Note:- Inspection Authorities may at their discretion obviate inspection of the equipment/plant against site conditions which are not present at site of inspection. However an undertaking from the OEM/ Supplier shall be taken that equipment/plant shall perform satisfactorily at the specified site condition(s).

M-I (CRPF)..... *[Signature]* P.O. *[Signature]*
 M-II (BSF)..... *[Signature]* M-III (CISF)..... *[Signature]*
 M-IV (NSG)..... *[Signature]* M-V (SSB)..... *[Signature]* M-VI (ASSAM RIFLE)..... *[Signature]*
 M-VII (ITBP)..... *[Signature]* M-VIII (REP BPR&D)..... *[Signature]* Co-Opted member- *[Signature]*

S.No	Parameter	O.R./Specification
18	Rock Breaker:	a) Make: It shall be of manufacturer's own make/Atlas Copco /Indus/Daemo/Hammer Master/any reputed make. b) It should be capable of fitting on a 7-8 Ton hydraulic excavator. c) The attachment should be supplied with carrier plate for easy change over of attachments. d) The attachment should be capable of operating a chisel and <i>moil</i> point. e) The attachment should be supplied with vibration damping and recoil shocks absorbing arrangement as per manufacturer's design. f) Rock breaker should be provided with 2 Nitrogen gas cylinder of suitable capacity duly filled as reserved.
19	<u>Materials and maintainability aspects:</u>	a) Materials specification of all parts/components shall conform to relevant Indian /International Standard Specifications. b) All Components shall be designed in such a way that it has ample lubrication points, dust proofed/self lubricating type for easy maintenance.
20	<u>Miscellaneous:</u>	Bought Out Items: Bearings: Bearing shall be of a standard reputed make such as NBC, Tata, SKF etc conforming to BIS/International standards. Battery: It shall be of a standard reputed make such as Exide, Amron and SF etc conforming to BIS/International standards. Welding: The welding of components/parts, wherever done, in the equipment shall be neat & clean.
21	Safety Requirement:	Manufacturer of the equipment shall ensure that all safety aspects are taken care of so that maximum safety is provided to the operator/person handling the equipment during operation/maintenance.

ii) **HYDRAULIC EXCAVATOR PARAMETERS:-**

S.NO	SPECIFICATION	PARAMETERS/QRs RECOMMENDED BY SHQ(DLI)
1	Bucket Capacity.	minimum 0.30 Cum
2	Operating Weight Range	minimum 7 Ton
3	Digging Reach	6200 mm or above
4	Digging Depth	3500 mm or above
5	Cutting Height :	7000 mm or above
6	Dump Height	4500 mm or above
7	Swing Radius	1850 mm or less
8	Gradeability	35 degree
9	Max Vertical Wall Depth	3000 mm or above
10	Bucket Digging Force	4800 Kg or above
11	Height Of The Machine	2400 to 2800 mm
12	length Of The Machine	6000 to 6300 mm
13	width Of The Machine	2100 to 2300mm

iii) **ROCK BREAK PARAMETERS:-**

S.NO	SPECIFICATION	PARAMETERS/QRs RECOMMENDED BY SHQ(DLI)
1	Operating weight	400 Kgs or more
2	Operating pressure	100 Kg/cm ² or more
3	Strike rate	380 blows per minute or more
4	Blow energy	725 Joules or more

P.O. *[Signature]*

M-I (CRPF)..... *[Signature]* M-III(BSF)..... *[Signature]* M-III(CISF)..... *[Signature]* 12/05/2017

M-IV(NSG)..... *[Signature]* M-V(SSB)..... *[Signature]* M-VI(ASSAM RIFLE)..... *[Signature]*

M-VII(ITBP)..... *[Signature]* M-VIII(REF BPR&D)..... *[Signature]* Co-Opted member-..... *[Signature]*

Approved/Not Approved

[Signature]

Director General,
I.T.B. Police, Force

Appendix- "C"

TRIAL DIRECTIVE IN RESPECT OF MOTORIZED EXCAVATOR

Date of Trial.....
 Time of Trial.....
 Place of Trial.....
 GR of Trial Area..... (Clear/cloudy/partially cloudy/Hot and Humid/rainy/Foggy and Humid/Soft Snow or Hard Ice)
 Temperature.....
 Altitude.....
 Weather Condition.....

S. No.	PARAMETER	Specification	Procedure Suggested for Trial	Result expected/desired
1	General	The Track/Roller Chain Based motorized excavator will be employed for excavation, digging, demolition and finishing job at the inclement weather with temperature ranging from machine should be able to operate upto minus 20 deg.centigrade at the height/altitude ranging from MSL to 19500 feet. The equipment shall be rugged and of sturdy construction, capable of working continuously in the tough terrain and geographical condition and easy to transport in available resources	The equipment will be employed for the work of digging, excavation, loading, grading, demolition etc.	The equipment should be able to perform the specified jobs as per QRs to be verified by B.O.O.
2	Engine	Four cylinder, four stroke, water cooled, naturally aspirated or turbocharged diesel engine of reputed make such as Komatsu/ ISUZU/ BEML/ Kinloskar/ Cummins/Tata or of a reputed make conforming to ARAI/BIS/BS/DIN/SAE standards 10000:10002 and should have cold starting kit to start engine upto -20 degree Celsius preferably	Based on the certificate provided by the manufacturer and ground trials of equipments for meeting temperature range -20 to +55 degree Celsius.	It should meet the desired parameters as per the QRs.
3	Engine Power	Not less than 54HP @rated RPM.	Based on the certificate provided by the manufacturer.	i) It should meet the desired parameters. ii) Certificate provided by manufacturer to be verified by B.O.O.
4	Fuel	Diesel	The fuel at any port will be checked and certificate to be provided by the manufacturer.	It should be diesel. The equipment should be compatible to Indian fuel.
5	Fuel Tank Capacity	Minimum 120 ltr.	i) It should be physically checked by the B.O.O. ii) The fuel tank should be drained completely and refill by the measuring unit.	Fuel capacity of the tank should be minimum 120 lbs to be verified by B.O.O.

P.O.
 M-I (CRPF).....
 M-I (BSF).....
 M-III (CISF).....
 M-IV (NSG).....
 M-V (SSB).....
 M-VI (ASSAM RIFLE).....
 M-VII (TBP).....
 M-VIII (REP BPR&D).....
 Co-Opted member.....

S. No.	PARAMETER	Specification	Procedure Suggested for Trial	Result expected/desired
6	Brake System	i) The machine should not operate without movement of lever. ii) Parking brake should be provided. The equipment should not operate when parking brake is applied.	i) The brake shall be applied on the equipment. ii) Parking brake will be applied in a slope not more than 30 degree.	It should be able to stop the equipment properly and effectively with both service and parking brake & not operate without movement of lever to be verified by B.O.O.
7	Ground Clearance	Minimum 350 mm	Ground clearance shall be measured from the lowest part of the equipment.	It should not less than 350mm to be verified by B.O.O.
8	Main Frame/ Chassis	The main frame shall be very strong and of rigid construction. The cabin floor shall be attached to the main frame by flexible mountings. The main frame of the chassis shall be made of cast/fabricated steel components of the high stress areas of the attachment. This should ensure even distribution of forces into steel structure. The frame should be robust enough to take extreme working stresses throughout the life of the hydraulic excavator. The frame shall be mounted on the fully hydrostatic type track drive. The travel mechanism shall be fitted with lifetime lubricated track rollers, idlers and sprockets with floating seals.	i) As per the certificate provided by the manufacturer. ii) It should be physically checked by the B.O.O.	i) Certificate provided by manufacturer to be verified by B.O.O. ii) It should meet the desired parameters.
9	Configuration	i) The tracked excavator will have two main section. The undercarriage and super structure. The undercarriage will include the dozer blade(detachable size minimum of 1.5 meter wide & 0.45 meter height and fully welded steel) tracks, track frame and final drive. The super structure should be attached to the undercarriage in a way allowing the machine to slew 360 degree unhindered. ii) Upper roller: min 1 on each track Lower roller: min 5 on each track Track shoes: min 36 on each track	i) As per the certificate provided by the manufacturer. ii) It should be physically checked by the B.O.O.	i) Certificate provided by manufacturer to be verified by B.O.O. ii) It should meet the desired parameters.
10	Hydraulic Pump	i) The main components of the hydraulic system should consists of hydraulic oil tank, hydraulic pump, control valves and filters. The control valves shall be with built in relief valves. ii) Implement circuit pressure: min 250 kgf/sq cm Swing circuit pressure: min 250 kgf/sq cm Travel circuit pressure: min 280 kgf/sq cm Pilot circuit pressure: min 30 kgf/sq cm Flow rate- main pump: min 2x60 lpm Flow rate- pilot pump: min 20 lpm	i) As per the certificate provided by the manufacturer. ii) It should be physically checked by the B.O.O.	i) Certificate provided by manufacturer to be verified by B.O.O. ii) It should meet the desired parameters.

P.O.
M-V(SSB) *[Signature]*
M-I (CRPF) *[Signature]* M-II (BSF) *[Signature]* M-III (CISF) *[Signature]* M-IV (NSG) *[Signature]*
M-VI (ASSAM RIFLE) *[Signature]* M-VII (ITBP) *[Signature]* M-VIII (REP BPR&D) *[Signature]* Co-Opted member *[Signature]* contd -3-

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S. No.	PARAMETER	Specification	Procedure Suggested for Trial	Result expected/desired
11	Operator's Cabin	<p>It should conform to latest ISO/ergonomic standards. It should serve the intended purpose operator's safety and comfort and it should reduce injury and increase operator protection in the case of falling objects (such as a rock or piece of machinery).</p> <p>i) The cabin shall have two doors, floor mats, clear view in all directions. ii) The operator's seat shall be so designed to ensure easy operation of all lever positions. The seat should be adjustable, reclining type with armrest movable with or without control levers & ergonomically designed. iii) The cabin shall be well ventilated with two rear view mirrors, interior light, wipers, fire extinguisher, first aid box, fan, defogger & heating system. iv) The hydraulic excavator shall be provided with necessary lights to perform the tasks during darkness/ fog/rainy season and should be conforming to traffic regulations.</p>	<p>It should be physically checked by the B.O.O.</p>	<p>It should meet the desired parameters.</p>
12	Electrical System	<p>It should be 12/24 volts system and to be powered by a suitable Alternator and batteries. The complete electrical system of the hydraulic excavator shall cater for safeguards against short circuiting, over voltage and battery should be insulated/heating coil wrapped to minimize any power loss due to cold weather.</p> <p>The instrument panel should be fixed at a convenient position for ease of operation. The following shall be invariably fitted on the instrument panel:-</p> <p>a) Digital Hour meter, water/coolant temp gauge, engine oil pressure gauge/indicator, fuel gauge, blocked air filter indicator, engine speed /rpm gauge, engine starting by ignition key, horn switch, switches for various lights and visible fault warning system for alternator charging. b) All the gauge in the panel shall be quickly readable and understandable. c) All instruments must be properly illuminated for night time operation. d) All audible signals shall be distinguishable from the operating point of the hydraulic excavator. e) The reflectors of the hydraulic excavator shall be visible at night from all distances within a range of 30 mtrs to 180 mts (when directly in front of lower beam of a head lamp). f) The hydraulic excavator shall be provided with warning system for low engine oil pressure and high temperature/indicator.</p>	<p>i) As per the certificate provided by the manufacturer. ii) It should be physically checked by the B.O.O.</p>	<p>i) Certificate provided by manufacturer to be verified by B.O.O. ii) It should meet the desired parameters.</p>
13	Instrument Panel		<p>The instrument panel will be checked physically by B.O.O.</p>	<p>All devices / meters fitted on instrument panel should be in excellent working condition to be verified by B.O.O.</p>

P.O.
 M-V(SSB) *[Signature]*

M-I (CRPF) *[Signature]* M-II (BSF) *[Signature]* M-III (CISF) *[Signature]* M-IV (NSG) *[Signature]*
 M-VI (ASSAM RIFLE) *[Signature]* M-VII (TBP) *[Signature]* M-VIII (REP BPR&D) *[Signature]* Co-Opted member- *[Signature]*

S. No.	PARAMETER	Specification	Procedure Suggested for Trial	Result expected/desired
14	Controls	a) The Excavator shall have hydraulically assisted pilot controls for smooth & safe operation of the machine. b). All pilot levers operated to ISO control system. c). Tracks: Individual pilot operated foot pedal/cable or hand levers shall be provided for all functions. d) Engine stop: Through cable or with Key.	It should be physically checked by the B.O.O.	It should meet the desired parameters.
15	Travel Speed	Minimum 3 Km/hour	It should be physically checked by the B.O.O.	it should not less than 3 Km/hour to be verified by B.O.O.
16	Swing system	The swing system should have a hydrostatic motor and planetary gear reduction box to achieve a swing speed of minimum 12.5 rpm or more	i) As per the certificate provided by the manufacturer. ii) It should be physically checked by the B.O.O.	i) It should meet the desired parameters. ii) It should not less than 12.5 rpm to be verified by B.O.O.
17	Painting	As per requirement of user/ITBP. a) <u>Gearing</u> : Gear/Roller shall be designed to have ample strength to adequately withstand wear and temperature rise. They shall as far as possible, conform to the requirements of IS: 2535-1963/DIN 3962/ international standards. Keys in gear/roller trains shall be so fitted and secured that they cannot work loose. For fittings of gears/roller to shafts at various locations, no permanent welding joint be carried out. b) <u>Hardware Items</u> : All the hardware items shall be galvanized/surface treated as per manufacturer's design. c) <u>Instruction Plate/Sticker</u> : The machine shall have instruction plate/Sticker permanently affixed at suitable location, indicating precautions and any special important procedures to be observed in operating and servicing of the machine. d) <u>Identification Plate</u> : The machine shall have permanently affixed to it, an anodized aluminium plate/blackened brass plate with the following details marked there on :- i) Nomenclature ii) Make/Model iii) Manufacture's name iv) Serial Number of machine v) Year of Manufacturing vi) Engine Number,		
18	General Requirements		i) As per the certificate provided by the manufacturer. ii) It should be physically checked by the B.O.O.	i) Certificate provided by manufacturer to be verified by B.O.O.. ii) It should meet the desired parameters.

P.O.
M-V(SSB) *[Signature]*
M-I (CRPF) *[Signature]* M-II(BSF) M-III(CISF) *[Signature]* M-IV(NSG) *[Signature]*
M-VI(ASSAM RIFLE) *[Signature]* M-VII(TBPF) *[Signature]* M-VIII(REP BPR&D) *[Signature]* Co-Opted member *[Signature]*

S. No.	PARAMETER	Specification	Procedure Suggested for Trial	Result expected/desired
19	Rock Breaker:	<p>e) Site Condition:- Unless otherwise stated specifically the design construction and performance of the eqpt shall be under the following environmental conditions of use/storage. The Hydraulic Excavator with rock breaker attachment shall also be suitable for working in snowy & stormy desert conditions</p> <p>i) Temperature : Able to operate upto minus 20 deg C.</p> <p>ii) Altitude : Up to 19500 feet above MSL</p> <p>iii) Humidity : 100% irrespective of temperature</p> <p>Note:- Inspection Authorities may at their discretion obviate inspection of the equipment/plant against site conditions which are not present at site of inspection. However an undertaking from the OEM/ Supplier shall be taken that equipment/plant shall perform satisfactorily at the specified site condition(s).</p> <p>a) Make: It shall be of manufacturer's own make/Atlas Copco /Indus Copco /Indus/Daemo/Hammer Master/any reputed make.</p> <p>b) It should be capable of fitting on a 7-8 Ton hydraulic excavator.</p> <p>c) The attachment should be supplied with carrier plate for easy change over of attachments.</p> <p>d) The attachment should be capable of operating a chisel and <i>moil</i> point.</p> <p>e) The attachment should be supplied with vibration damping and recoil shocks absorbing arrangement as per manufacturer's design.</p> <p>f) Rock breaker should be provided with 2 Nitrogen gas cylinder of suitable capacity duly filled as reserved.</p>	<p>i) As per the certificate provided by the manufacturer.</p> <p>ii) It should be physically checked by the B.O.O.</p>	<p>i) Certificate provided by manufacturer to be verified by B.O.O.</p> <p>ii) It should meet the desired parameters.</p>
20	Materials and maintainability aspects:	<p>a) Materials specification of all parts/components shall conform to relevant Indian /International Standard Specifications.</p> <p>b) All Components shall be designed in such a way that it has ample lubrication points, dust proofed/self lubricating type for easy maintenance.</p>	<p>i) As per the certificate provided by the manufacturer.</p> <p>ii) It should be physically checked by the B.O.O.</p>	<p>i) Certificate provided by manufacturer to be verified by B.O.O.</p> <p>ii) It should meet the desired parameters.</p>
21	Miscellaneous:	<p>Bought Out Items:</p> <p>Bearings: Bearing shall be of a standard reputed make such as NBC, Tata, SKF etc conforming to BIS/International standards.</p> <p>Battery: It shall be of a standard reputed make such as Exide, Amron and SF etc conforming to BIS/International standards.</p> <p>Welding: The welding of components/parts, wherever done, in the equipment shall be neat & clean.</p>	<p>i) As per the certificate provided by the manufacturer.</p> <p>ii) It should be physically checked by the B.O.O.</p>	<p>i) Certificate provided by manufacturer to be verified by B.O.O.</p> <p>ii) It should meet the desired parameters.</p>
22	Safety Requirement:	<p>Manufacturer of the equipment shall ensure that all safety aspects are taken care of so that maximum safety is provided to the operator/person handling the equipment during operation/maintenance.</p>	<p>i) As per the certificate provided by the manufacturer.</p> <p>ii) It should be physically checked by the B.O.O.</p>	<p>i) Certificate provided by manufacturer to be verified by B.O.O.</p> <p>ii) It should meet the desired parameters.</p>

P.O. M-I (CRPF) M-II (BSF) M-III (CISF) M-IV (NSG) contd -6

M-V (SSB) M-VI (ASSAM RIFLE) M-VII (ITBP) M-VIII (REP BPR&D) Opted member

(111)

ii) HYDRAULIC EXCAVATOR

S.NO	SPECIFICATION	PARAMETERS/QRs RECOMMENDED By board for suggestion	Procedure Suggested for Trial	Result expected/desired
1	Bucket Capacity.	minimum 0.30 Cum	Will be calculated as per SAE standard	It should be as per desired parameter in the QRs.
2	Operating Weight Range	minimum 7 Ton	As per the certificate provided by the manufacturer.	a) It should meet the desired parameters. b) Certificate provided by manufacturer to be verified by B.O.O..
3	Digging Reach	6200 mm or above	Will be measured physically	It should be as per desired parameter in the QRs.
4	Digging Depth	3500 mm or above	Will be measured physically	It should be as per desired parameter in the QRs.
5	Cutting Height :	7000 mm or above	Will be measured physically	It should be as per desired parameter in the QRs.
6	Dump Height	4500 mm or above	Will be measured physically	It should be as per desired parameter in the QRs.
7	Swing Radius	1850 mm or less	Will be measured physically	It should be as per desired parameter in the QRs.
8	Gradeability	minimum 35 degree	Will be measured physically	It should be as per desired parameter in the QRs.
9	Max Vertical Wall Depth	3000 mm or above	Will be measured physically	It should be as per desired parameter in the QRs.
10	Bucket Digging Force	4800 Kg or above	As per the certificate provided by the manufacturer.	a) It should meet the desired parameters. b) Certificate provided by manufacturer to be verified by B.O.O..
11	Height Of The Machine	2400 to 2800 mm	Will be measured physically	It should be as per desired parameter in the QRs.
12	length Of The Machine	6000 to 6300 mm	Will be measured physically	It should be as per desired parameter in the QRs.
13	width Of The Machine	2100 to 2300mm	Will be measured physically	It should be as per desired parameter in the QRs.

ii) Rock Breaker

S.NO	SPECIFICATION	PARAMETERS/QRs RECOMMENDED By board suggestion	Procedure Suggested for Trial	Result expected/desired
1	Operating weight	400 Kgs or more	As per the certificate provided by the manufacturer.	It should meet the desired parameters.
2	Operating pressure	100 Kg/cm ² or more		
3	Strike rate	380 blows per minute or more		
4	Blow energy	725 joules or more		

P.O.....

M-1 (CRPF).....

M-1 (BSF).....

M-III (CISF).....

M-V (NSG).....

M-V (SSB).....

M-VI (ASSAM RIFLE).....

M-VII (ITBP).....

M-VIII (REP BPR&D).....

Co-Opted member.....

Approved / Not Approved

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Director General,
I.T.B.Police, Force