DIRECTORATE GENERAL, CRPF,

Block No.1, CGO Complex, Lodhi Road, New Delhi-03 (Bharat Sarkar/Grih Mantralaya) (Tele-011-24360155/FAX.011-24360155.Email:-digprov@crpf.gov.in)

No.L. VII-10/2024-25-Prov-DA-5

Dated, the 02/09/2024

To

All Zones

All Sectors (including CoBRA, RAF, VS)

All Ranges

All Group Centres

All Commandants

Central Reserve Police Force

At locations.

Subject:-

Forwarding of approved QRs/Specification of DG Sets

Following Two QRs/Specification and Trial Directives framed by Provisioning Directorate CRPF has been approved by DG BSF vide letter No. P-63013/155/02/2024/Mod-I/BSF/3030-35 dated 30/08/2024 being the Nodal Agency. Henceforth, all procurements should be made as per approved QRs/Specification.

 Revised QRs/Specification and Trial Directives of DG sets (5, 7.5, 10, 20 & 30 KVA) capacity as per CPCB-IV compliant

2) QRs/Specification for conversion of existing CPCB-II compliant DG set into Dual fuel kit/Retro fitment.

2. This has superseded previous QRs/Specification framed by BSF and circulated vide letter No. P.63013/31/2019/MOD-I/BSF/3658-70 dated 04th Nov, 2022 available in MHA, CRPF and GeM website.

Encl:- Two QRs/Specification.

(Ram Kumar) DIG (Prov) Dte.

Internal :-

DIG (IT) Dte with a copy of above mentioned approved QRs/Specification for uploading on CRPF website in QRs sections of Provisioning Branch.

Encl:- Two QRs/Specification.

संख्या. पी-63013/155/02/2024/मोड-।/सीसुबल/ ८०३०- ३५

भारत सरकार, गृह मंत्रालय महानिदेशालय सीमा सुरक्षा बल

(रसद निदेशालय: आध्निकीकरण सैल) (Email-comdtord@bsf.nic.in)

(Fax: 011-24367683)

ब्लाक संख्या . 10, सीजीओ काम्पलैक्स, लोधी रोड, नई दिल्ली-03 दिनांक ८० अगस्त 2024

सेवा में.

महानिदेशक:-

आसाम राईफलस (through LOAR), केन्द्रीय ओद्यौगिक सुरक्षा बल, केन्द्रीय रिजर्व पुलिस बल, भारतीय तिब्बत बोर्डर पुलिस, सशस्त्र सीमा बल, राष्ट्रीय सुरक्षा गार्ड एवं पुलिस अनुसन्धान एवं विकास ब्योरो

विषयः अनुमोदित गुणात्मक आवश्यकता / परीक्षण निर्देशों का प्रेषण

तकनीकी विशेषज्ञों के उप समूह द्वारा किए गये सूत्रीकरण एवं महानिदेशक सीमा सुरक्षा बल द्वारा अनुमोदित "QRs & TDs of Diesel Generator Set (5, 7.5,10, & 30 KVA) and QRs & TDs for Installation of Dual-Fuel Kit/Retro Fitment of Existing DG Set के संशोधित गुणात्मक आवश्यकता / परीक्षण निर्देशों को आपकी अग्रिम कार्यवाही हेतु प्रेषित किया जाता हैं। संलग्न : उपरोक्तनुसार

अगनन्य भिर 30/8/24 (आनन्द सिंह तक्षक) उप महानिरीक्षक (रसद)

प्रतिलिपि:-

- तकनीकी निदेशक 1 The Technical Director राष्ट्रीय सूचना-विज्ञान केन्द्र, नोर्थ ब्लाक, गृह मंत्रालय, नई दिल्ली NIC, North Block, MHA New Delhi, (द्वारा ई-मेल) 😜 (ई-मेल पता : mpsugandhi@nic.in)
- 2. SO (IT), North Block, MHA (Through E-mail) (E-mail address: soit@nic.in)
- 3. तकनीकी विंग, सीमा सुरक्षा बल
- Sh. Anoop Dhanvijay, Director-Buyer 4. Management (CPSEs & Central Ministries), GOI. Ministry of Commerce & Industry, Government e-Marketplace. Jeevan Tara Building.5-Parliament Street. New Delhi-110001 E-mail:- anoop.dhanvijay@gem.gov.in
- The DIG (Prov), CRPF HQr
- 6. फाईल।

: आपसे अनुरोध है कि उक्त उपकरण के सूत्रीकरण किये गये गुणात्मक आवश्यकता /परीक्षण निर्देशों मंत्रालय की वैबसाईट आधुनिकीकरण संभाग) के गुणात्मक आवश्यकता पोर्टेल में मशीनरी एवं उपकरण के साथ निगरानी उपकरण वर्ग के अर्न्तगत कमांक संख्या-64 पर पहले से अपलोड है के स्थान इस पत्र के साथ संलग्न संशोधित गुणात्मक आवश्यकता / परीक्षण निर्देशों को अपलोड करने का श्रम करें।

कृपया उपरोक्तानुसार कार्यवाही करने का श्रम करें।

कृपया उक्त उपकरण के गुणात्मक आवश्यकता/ परीक्षण निर्देशों को सीमा सुरक्षा बल की वैबसाईट पर अपलोड करने का श्रम करें। For info with request to upload the approved

Revised QRs & TDs of "Revised QRs & TDs of Diesel Generator Set (5, 7.5,10, & 30 KVA) and QRs & TDs for installation of dual-fuel kit/retro fitment of existing DG Set" on GeM Portal. Copy of QRs & TDs is attached with this letter.

वास्ते सूचनार्थ आपके पत्र संख्या--M.XII-I/2023-24-Prov-DA-5 दिनांक 21 अगस्त 2024 के संदर्भ में।

	REVISED DRAFT QUALITAT	
	IVE REQUIREMENTS AND TRIAL	
Dort	LDIRECTIVES OF DIESEL GENERATO	
	OR SETS (I.E. 5, 7.5, 10, 20 & 30 KVA)	

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	.8	7.	60	.5	4.		
BSE CRA	Rated RPM of Engine(RPM)	Number of cylinder(Nos)	Engine::Cooling	No of phase (output capacity rating/phase)	Nominal rated capacity (KVA)		
	b) 3000 {User to decide as per requirement at the time of indent)	5KVA & 7.5 KVA- 1 or 2 Cylinder 10, 20 & 30 KVA- Multi Cylinder (3& above)	Air cooled/water cooled 3 (for example :: Water cooled 3 cylinder, in line, rated 1500 RPM with a minimum 42 BHP in 30 kW capacity DG set)	5 KVA&7.5 KVA- Single phase 10,20 & 30 KVA- 3 phase For example 3phase should generate 415 V AC electricity.	5, 7.5, 10, 20 & 30 KVA		
A A A	воо	BOO To be physically checked by the	BOO and OEM certificate also submitted by firm in respect of same DG set must be 4 stroke	To be physically checked by the BOO	To be physically checked by the BOO and NABL certificate also submitted by firm in respect of same.		
BARRAD 17BA		mentioned in specification. RPM must be 1500 or 3000	make in India certification.	specification, also, there must be a current meter facility available for each phase.	30 KVA. 30 KVA.	 Battery charger, excitation control, voltage regulating equipment. Circuit Breaker. Auto/manual mode selector switch. 	 Audio-visual alarm indication/annunciation facility. Engine/DG shutdown

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		1707		
		100 % load- 2.6 L/h		
		7.5 KVA –		٠
specification.	S	75% load- 1 L/h		
consumption capacity as per		100% load- 1.4 L/h		
Must have the fuel	To be checked by the 800 N	5 KVA-	Fuel consumption	17.
0		for 8 hours running		
		as fuel as per capacity of DG set		
Required	To be checked by the BOO R	30 to 70 litre capacity with HSD	Diesel lank & Fuel system	
	respect of the same.		Discolator B Time	15
	Indian Govt lab certificate in			
insulation.	γ.	. 10. 10.		- 19-
DG set must have H class		3	State Of Historio	
one not acceptable.		=	Class of insulation	15
window service. Assembled			n Albani	
the same make be get single		סו פוסנפננוסוו.		*** *****
that alternate should be of		of protection bei it as degree		2000
Supplier firm should ensure	3	protected as not IB-13 dozen		
Alternator must be IP-23,	to be checked by the BOO	drin noof	į	
Voltage DC	13		Alternator	14
Starting voltage must be 12	To be checked by the BOO	12 Volt DC	Starting Voltage	13
**	71	provided.		د
		class with actuator shall be		
		Electronic Governors of A1		
		ISO 3046/BS-5514 for	10	
monitoring the speed.		or		
contained unit capable of	from NABL accredited lab.	AZ.		
Governor shall be self	Firm has to provide certificate	For mechanical Governors of	class of Governor	14.
			المامية المامية	رد
		Electronic- Above 20 KVA		
Electronic	NABL accredited lab.	and		
Governor of DG set must be	Firm has to provide certificate	Mechanical - Upto20 KVA	Type of Governor	11.
		Diesel injection Fuel System.		
	To be checked by BOO	Turbo charged DigitalEngine.	Salient features of engine	10.

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	20.	19.	18.
	Battery & Battery charger system	Noise level at 1 meter(dB)	Automatic Voltage regulator
Diction of the board	2 457,0 9 6	anufacturer shall off er a standard aco ure of 75dB (A) inse dalso a suitable ext r with insertion lo) as per CPCB-IV.	10 KVA- 100% load- 2.1 L/h 75% load- 1.7 L/h 50% load- 1.2 L/h 20 KVA- 100% load- 4.3 L/h 75% load- 3.5 L/h 50% load- 2.4 L/h 30 KVA - 100% load- 5.3 L/h 75% load- 5.3 L/h 75% load- 2.9 L/h 50% load- 2.9 L/h 50% load- 2.9 L/h
	NABL accredited lab certificate has to be provided.	To be checked by the BOO and Testing & certification of DG sets for noise compliance as per CPCB norms have to be provided from Automotive Research Association of India. To be checked by the BOO.	To be checked by the BOO
	14257 for high cranking performance.	per specification. Low maintenance free to IS	Must have required specification.

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				L
pipe/copper plate.				
shall be done G.I			•	
plate and body earthing				
shall be done by copper	±			
earthing. Neutral earthing				
for neutral and 2 for body	÷.			
pits/station shall be 4 i.e. 2	2017	ı		
total number of earthing	1			
supplied by the seller. The	8	are seriet.		
of earthing station shallbe	2	the collections shall be done by		
required for construction		connections shall be done		
 All the materials , labour 	To be checked by BOO	Construction of suitable	000	į
specification.	respect of the same.	indent)		
mentioned in the	morali Goar ian cellilicate in	+ +60		
000	Indian Court lab continuers in	ע		
dual Suna	accredited ah certificate /and	> -40 to +55 C		
1	Firm has to provide National	> -20° to +55° C or	Operating temperature	24.
expected/desired.	submitted after commissioning.			•
the given result	NABL certificate has to be			
Supplier firm has to produce	To be checked by 800,	With installation	mstallation & commissioning	
		with PVC outer.	Installation o	ŭ
	a a	PVC insulated , armoured cable		
580		shall be ISI marked heavy duty		
		the seller. The cable supplied		
		control cable shall be done by		
and got checked from BOO.		of interconnecting power and	34	
Supplier firm has to ensure	To be checked by 800	Supply, laying and termination	Wiring	22.
		systems.		3
		and 1800 to 2200 RPM for 60Hz		
		per minute) for 50Hz systems		
Must be available	To be checked by the BOO	1500 to 1800 RPM (revolution	Speed Governor	21.
		ON and 5 seconds OFF cycle.		2
		Children of a second		

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BND 3

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	31. Docun		30. Testing	29. Time of the following during	28. Respo	26. Warra 27. Numb vear d	25. Warra Gener	
(m)	Documents/certificate		90	Time duration for repairing /replacement the defective during warranty	Response time to attend the complaint during warranty	Warranty for running hours Number of preventive maintenance visits offered in an year during warranty period.	Warranty of complete Power Generator/DG set	
	Test report and certificate has to be provided to the buyer during bidding time on demand		Certificate required as per CPCB norms from ARAI or authorised NABL accredited lab.	3 days	1 day	At least 3 (three)	24 month	
	To be physically checked by BOO		BOO.	To be abscically aborked by	To be checked by BOO	To be checked by 800	To be checked by BOO To be checked by BOO	
M N	Supplier firm has to ensure supply of required documents/certificate.	fulfils (p certific pe test pators p lators p	for the specified rating of the power Generator from any of the designated	Type approved certificate	Ensured by supplier firm	Ensure by supplier firm	Ensured by supplier firm	station within 10 meters of Power Generator. (Preferably chemical earthing within 10 mtrs distance of Gen Set)

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	34.					33.			32.
	Specific tools				manual	Operating manual/technical		ð	User manual
supplier firm.	Required tools for servicing the To be physically checked by	provided with the requirement.	inspection standards be	maintenance manual,	technical literature, BOO	Detailed operators instruction, To be physically checked by	mentioned in the user manual	guidelines have to be 800	Details of specification with To be physically checked by
	e physically checked by					e physically checked by			e physically checked by
given items before the 800	Firm have to produce the		-		given items before the 800	Firm have to produce the		given items before the BOO	Firm have to produce the

(Sandeep Khinwan) 1Ps		Assam Rifles Ax/ End R D Ansaid) (Y. K. Gantam E)
Approved Not approved	ogh) (Shahnawa3 Khan) (Sonal V. Misna) 1P5	CRPF CRPF Lines Dinesh Chandra (MK 5ingh, AC-2)

PART-II

QRS/SPECIFICATION FOR CONVERSION OF EXISTING CPCB-II COMPLIANT DG SET INTO DUAL FUEL MODE

DG sets from 25 KVA to 76 KVA Need to be converted to DUAL FUEL MODE for existing Gen Sets which are not compatible to CPCB-IV(only 30 KVA comes).

Scope and Supply Details :-

Supply, Installation, Testing & Commissioning of Dual Fuel kit.

14	13.	12.	11.	11	10	9.	8	7.	6.	ហ		4	3.	2.			1.	Sl.no.
Pressure sensor	Sensors (Gas leakage sensor)	NICB/Relay/Contractor etc.	TOTAL CONTRACTOR OF THE CONTRA	HAMIL In Built segmential bas injection system	PLC /ECM	Control panel with touch screen-	Manual adjustment Screw/- Sequential gas injection system	Air gas mixer with MAS /- Sequential gas injection system	Pressure gauge 0-500 mbar - or Sequential gas injection system	Pressure regulator Inlet-2 Bar, Outlet-150m bar or Inlet pressure 500 mbar and Outlet pressure- 150 mbar (As per site requirement)/ Sequential gas injection system	system	Electrically operated slow opening valve or sequential gas injection	150 mbar zero pressure regulator / Sequential gas injection system	Filter-50 micron	hoses sets as a complete Kit.	Gas Controller (ECM), Injector Rail, Changeover Switch, Wiring Harness, Solenoid valve, Gas Filter, MAP sensor, Exhaust Gas Temperature sensor, Knock Sensor, Engine Coolant Temp Sensor, Lambda Sensor, Rubber	Gas train (filter, ZPR, MVDLE)/-Sequential gas Injection system - raits supplied in Sequential Gas Retro Kit -	Specifications of the item
Celtificate reduired it our Orium	Continue required from DEM	To be checked by BOO	To be checked by BOO	To be checked by BOO	To be checked by boo	10 be checked by 200	To be checked by 800	required. Warranty of the item for life time.	10 be checked by BOO		-do-	-00-		200	-do-	To be checked physically by BOO	standard certificates to be provided by OEM.	Necessary EU standards or equivalent

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Vibration sensor Dual Fyle (System comes with an automatic control panel consisting of PLC (Programmable logic Controller) and HMI (Human Machine Interface). It controls the complete dual fuel kit with no manual intervention. It is a panel box which is mounted on the DG set itself and requires no extra space. It has proper safeties and all sensors are connected in the panel to ensure smooth transition between dissel and dual fuel. Power supply The system draws its power from the DG set alternator. It does not require any other additional power supply. Willities required Requires a gas connection outlet at the top of the DG set. PNG connection at 500 MBAR pressure will be provided by the user. A flange outlet of the PNG pipe will be required with the following specifications: Yor 1 inches flange outlet. These outlets will be provided near to the DG set on the TOP of the canopy. Incase of canopy DG set and in case of an open DG set, the user will provide at 1-5 feet height from the ground. Floor preparation for installation & Commissioning Nothing is required except for the PNG pipeline outlet. (As per user requirement) Installation may take a period of 2-3 days for DG set. Firm will require a downtime of 10-12 hours for 1 DG set during which the DG set won't be allowed to operate. The commissioning would happen after the complete installation. During commissioning firm would papen after the complete installation may take a period of 2-3 days for DG set. Firm will require a downtime of 10-12 hours for 1 DG set during which the DG set won't be allowed to operate. The commissioning would happen after the complete installation and start the gas for the DG set to run on dual fuel mode. The total commissioning procedure takes 2-3 hours per DG set. Firm requires availability of diesel and load at the time of commissioning	100	0-1 Bar, 0-4 Bar -	
Wire Harness as per Engine Control Dual Fuel system comes with an automatic control panel consisting of PLC (Programmable logic Controller) and HMI (Human Machine Interface). It controls the complete dual fuel kit with no manual intervention. It is a panel box which is mounted on the DG set itself and requires no extra space. It has proper safeties and all sensors are connected in the panel to ensure smooth transition between diesel and dual fuel. Power supply The system draws its power from the DG set alternator. It does not require any other additional power supply. Utilities required Requires a gas connection outlet at the top of the DG set. PNG connection at 500 MBAR pressure will be provided by the user. A flange outlet of the PNG pipe will be required with the following specifications: 'X or 1 inches flange outlet. These outlets will be provided near to the DG set on the TOP of the canopy, Incase of canopy DG set and in case of an open DG set t, the user will provide at 1-5 feet height from the ground. Floor preparation for installation & Commissioning Nothing is required except for the PNG pipeline outlet. (As per user requirement) Installation may take a period of 2-3 days for DG set. Firm will require a downtime of 10-12 hours for 1 DG set during which the DG set won't be allowed to operate. The commissioning firm would happen after the complete installation. During commissioning firm would run DG set on diesel mode for 1 hour on load. After that firm would optimize the parameters in their software and start the gas for the DG set to run on dual fuel mode. The total commissioning procedure takes 2-3 hours per DG set. Firm requires a position of the province of commissioning set. Firm requires a position of the province of commissioning set. Firm requires a position of the province of commissioning procedure takes 2-3 hours per DG set. Firm requires a position of the province and start the gas for the DG set of commissioning the province of commissioning procedure takes 2-3 hours per DG set. F	15.	Vibration sensor 0-2 IPS/Knock sensor-	 Certificate required from OEM
Control Control Dual Fuel system comes with an automatic control panel consisting of PLC (Programmable logic Controller) and HMI (Human Machine Interface). It controls the complete dual fuel kit with no manual intervention. It is a panel box which is mounted on the DG set itself and requires no extra space. It has proper safeties and all sensors are connected in the panel to ensure smooth transition between diesel and dual fuel. Power supply The system draws its power from the DG set alternator. It does not require any other additional power supply. Utilities required Requires a gas connection outlet at the top of the DG set. PNG connection at 500 MBAR pressure will be provided by the user. A flange outlet of the PNG pipe will be required with the following specifications: 'X or 1 inches flange outlet. These outlets will be provided near to the DG set on the TOP of the canopy, Incase of canopy DG set and in case of an open DG set , the user will provide at 1-5 feet height from the ground. Floor preparation for installation & Commissioning Nothing is required except for the PNG pipeline outlet. (As per user requirement) Installation & Commissioning Installation & Commissioning would happen after the complete installation. During commissioning firm would run DG set on diesel mode for 1 hour on load. After that firm would optimize the parameters in their software and start the gas for the DG set to run on dual fuel mode. The total commissioning procedure takes 2-3 hours per DG set. Firm requires and load at the time of commissioning	16.	Temperature Sensors	To be checked by BOO
Dual Fuel system comes with an automatic control panel consisting of PLC (Programmable logic Controller) and HMI (Human Machine Interface). It controls the complete dual fuel kit with no manual intervention. It is a panel box which is mounted on the DG set itself and requires no extra space. It has proper safeties and all sensors are connected in the panel to ensure smooth transition between diesel and dual fuel. Power supply The system draws its power from the DG set alternator, it does not require any other additional power supply. Utilities required Requires a gas connection outlet at the top of the DG set. PNG connection at 500 MBAR pressure will be provided by the user. A flange outlet of the PNG pipe will be required with the following specifications: % or 1 inches flange outlet. These outlets will be provided near to the DG set on the TOP of the canopy. Incase of canopy DG set and in case of an open DG set, the user will provide at 1-5 feet height from the ground. Floor preparation for installation & Commissioning Nothing is required except for the PNG pipeline outlet. (As per user requirement) Installation any take a period of 2-3 days for DG set. Firm will require a downtime of 10-12 hours for 1 DG set during which the DG set won't be allowed to operate. The commissioning firm would pappen after the complete installation. During commissioning firm would primize the parameters in their software and start the gas for the DG set on diesel mode for 1 hour on load. After that firm bourd optimize the parameters in their software and start the gas for the DG set. Firm requires availability of diesel and load at the time of commissioning.	17.	Wire Harness as per Engine	To be checked by BOO
Dual Fuel system comes with an automatic control panel consisting of PLC (Programmable logic Controller) and HMI (Human Machine Interface). It controls the complete dual fuel kit with no manual intervention. It is a panel box which is mounted on the DG set itself and requires no extra space. It has proper safeties and all sensors are connected in the panel to ensure smooth transition between diesel and dual fuel. Power supply The system draws its power from the DG set alternator, it does not require any other additional power supply. Utilities required Requires a gas connection outlet at the top of the DG set. PNG connection at 500 MBAR pressure will be provided by the user. A flange outlet of the PNG pipe will be required with the following specifications:- % or 1 inches flange outlet. These outlets will be provided near to the DG set on the TOP of the canopy. Incase of canopy DG set and in case of an open DG set, the user will provide at 1-5 feet height from the ground. Floor preparation for installation & Commissioning Nothing is required except for the PNG pipeline outlet. (As per user requirement) Installation may take a period of 2-3 days for DG set. Firm will require a downtime of 10-12 hours for 1 DG set during which the DG set won't be allowed to operate. The commissioning firm would pappen after the complete installation. During commissioning firm would primize the parameters in their software and start the gas for the DG set. Firm requires a valiability of diesel and load at the time of commissioning.	18.	Control	To be checked by BOO
(Programmable logic Controller) and HMI (Human Machine Interface). It controls the complete dual fuel kit with no manual intervention. It is a panel box which is mounted on the DG set itself and requires no extra space. It has proper safeties and all sensors are connected in the panel to ensure smooth transition between dissel and dual fuel. Power supply The system draws its power from the DG set alternator. It does not require any other additional power supply. Utilities required Requires a gas connection outlet at the top of the DG set. PNG connection at 500 MBAR pressure will be provided by the user. A flange outlet of the PNG pipe will be required with the following specifications:- ½ or 1 inches flange outlet. These outlets will be provided near to the DG set on the TOP of the canopy. Incase of canopy DG set and in case of an oppen DG set, the user will provide at 1-5 feet height from the ground. Floor preparation for installation & Commissioning Nothing is required except for the PNG pipeline outlet. (As per user requirement) Installation may take a period of 2-3 days for DG set. Firm will require a downtime of 10-12 hours for 1 DG set during which the DG set won't be allowed to operate. The commissioning would happen after the complete installation. During commissioning firm would optimize the parameters in their software and start the gas for the DG set to run on dual fuel mode, The total commissioning procedure takes 2-3 hours per DG set. Firm requires availability of diesel and load at the time of commissioning.	*	of	To be checked by BOO
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		availability of diesel and load at the time of commissioning.	

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to be checked by book	After sales/service – After sales service will be provided by the supplier firm for at least 24 months (i.e. warranty period)	27.
To be checked by 800		
To be checked by BOO	For retro-fitment emission control device, there is only 1 specification is as under:-	26.
TO be checked at a con-	System has inbuilt safeties for engine parameters. It maps the manifold pressure, the gas supply pressure, manifold temperature, exhaust gas temperature, engine vibrations. Incase any parameter goes beyond the specified limits then the system automatically stops the gas flow and the DG set shifts to 100 % diesel and there is no breakdown on the gen set. The panel with IP-56 also has additional safety fuses to ensure that the sensors remain protected.	
To be checked by 800	Safety features	25.
standard certificates to be provided by OEM.	Pressure regulating valve, solenoid valve, zero pressure regulator, pressure sensors, PLC and HMI. Sequential gas injection system – Parts supplied in Sequential Gas Retro Kit Gas Controller (ECM), Injector Rail, Changeover Switch, Wiring Harness, Solenoid valve, Gas Filter, MAP sensor, Exhaust Gas Temperature sensor, Knock Sensor, Engine Coolant Temp Sensor, Lambda Sensor, Rubber hoses sets as a complete Kit.	
To be checked by boo	Critical spare parts	24.
To be checked by boo	No civil requirement. Some welding may be required to be done on site for which we would require a welder to be brought from outside for the stand preparation for the gas train incase the DG's do not have the canopy.	
To be checked by 800	Civil requirement for test equipments	23.
To be checked by BOO	No additional space required.	177
10 be checked by 200	Snace requirement for test equipments.	77

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6) 1116 611	The end user service manual including maintenance instructions.	 d) The instruction manual for the retrofit installation. 	(OBD) system.	
ion Contro		t installation.		
Device (RECD) is fitted in existing				

Note :- Sl.No.26, 30 & 31 point specification is applicable only when Retro Emission DG set above 30 KVA capacity. Upto 30 KVA capacity RECD is not required as only conversion to Dual Fuel Mode is

PART-III

applicable.

ork for installation, commissioning and supply of PNG/CNG/LPG gas connection for DG sets.

BPR &D	Assam Rifles	1) 2) 3)	מבר שממחרע של
2-I/C (Prov) CRPF	## \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	1) Providing connection from nearest distribution point (PNG/CNG) 2) Civil work like laying of pipe line. 3) Installation of Gas meter 4) Security deposit will be made by the buyer/user with gas agency v	and distributions work for a beginning to the
DIG (Prov) CRPF	End of part- III	Providing connection from nearest distribution point (PNG/CNG) Civil work like laying of pipe line. Installation of Gas meter Security deposit will be made by the buyer/user with gas agency which is refundable.	
IG (Prov) CRPF	NSG		

ADG (HQr) CRPF