

**GENERAL STANDING ORDER NO. 969 OF 1977.
(ISSUED FROM PERSONNEL DEPARTMENT)**

Sub : Supply of capital Equipment viz., Office equipment, furniture etc. to various units.

(A) The Corporation in its Resolution 8645 dated 30.6.1977 has approved the revised standards (indicated in Annexure "A") of office equipment, furniture etc. required for various offices in the Corporation (including officers, Depots, Stands etc.) and has further authorized the Regional Managers.

- (1) (a) to sanction & purchase items of equipment, and,
 - (b) in case of replacement, to replace the items of furniture and office equipment provided a committee consisting of the Head of Office, ME(O), DTO and Accounts Officer with the Stores Officer, as Secretary, declares the items as 'beyond economical repairs'.
- (2) to sanction the items of equipment shown in Annexure 'B' which are only specific to the office of Dy. Engineer and Ex.Engineer and also the replacement, if any, and...
- (3) to purchase the items of equipment shown in Annexure 'C' required for bus stations and drivers and conductors rest rooms.

(B) The Corporation has further accorded its approval to the following additional items and, to the extent mentioned the additional floats, for each division beside the machinery and equipment for the Divisions, Workshops and Depots which are to be purchased on the basis of standards already laid down by the Corporation.

No.	Additional items	No.of floats per division
1	(a) Air line with heater	1
	(b) Air line	4
2	Lazy Tong	3 corrected under No.ST/ ADM/ 120-A/ 8411 dtd. 31.10.1981.
3	Drilling machines, Portable Electric 1/4".	3
4	Electric Motor 3 HP	1
	Electric Motor 5 HP (with starter)	1
5	Ejector Pump	1

(C) The Corporation further directed that the purchase of items and their replacement, as authorized above, should be subject to the following conditions :-

- (1) No purchase shall be made unless the expenditure involved is within the specific budget allotment made to the unit. The budget will be allotted by the Dy.General Manager (S&P) from the total grant placed its disposal.
- (2) In respect of items to be purchased for replacement, it must be ensured that the items to be replaced are beyond economic repairs and necessary action to remove the same from the Block Accounts is taken as per the procedure, before its replacement.
- (3) Unless otherwise advised by the Dy.General Manager (S&P) all purchase should be made through the Dy.General Manager (S&P) as per the authority of rate contracts finalised by the Dy.General Manager (S&P).
- (4) In case where the purchase is made locally, as per advice given by the Dy.General Manager (S&P), the normal procedure for local purchase, e.g. inviting tenders etc. should be followed.

Sd/-
For Vice Chairman & General Manager,
M.S.R.T. Corporation.

No. ST/ADM/120-A/ 5117
M.S.R.T. Corporation, Central Offices,
Maharashtra Vahatuk Bhavan,
Mumbai 400 008.
Date : 21.07.1977.

Copy f.w.es all S.T. Units.

घटक कार्यालयनिहाय, वस्तुनिहाय लाकडी / स्टील (लोखंडी)/ प्लॅस्टिक/ फायबर व अन्य स्वरूपातील मंजूर उपकरणांची यादी.

अनु क्र.	वस्तु/ उपकरणे	मागणी प्रमाण							
		विभागीय कार्यालय	आगार 'अ'	आगार 'ब'	आगार 'क'	कार्यकारी अभियंता कार्यालय	उप अभियंता यांचे कार्यालय	प्रादेशिक कार्यालय	मध्यवर्ती कार्यालय
१	स्पेशल टेबल (घटक प्रमुखांसाठी)	१	-	-	-	-	-	१	
२	एक्झिक्युटिव्ह खुर्ची (स्टील) (रिक्वॉलव्हींग खुर्ची)	१	-	-	-	-	-	१	
३	ऑफिसर टेबल	वर्ग १ व वर्ग २ (वरिष्ठ अधिकार्यांसाठी)							
४	ऑफिसर खुर्च्या								
५	सब ऑफिसर टेबल	वर्ग २(कनिष्ठ) अधिकारी व पर्यवेक्षक कर्मचारी यांचेसाठी							
६	सब ऑफिसर खुर्च्या								
७	जनरल टेबल	मंजूर पदांच्या संख्येनुसार कार्यालयीन कामकाज व आवश्यकता							
८	जनरल खुर्च्या/ काऊन्टर खुर्च्या								
९	साइड रॅक	६०	१५	१५	१५	२०	१०	२००	-
१०	टेसर्स टेबल	आरेखक/ अनुरेखक/ कनिष्ठ अभियंता यांचे मंजूरीनुसार							
११	टेसर्स स्टूल								
१२	स्टील कपाट	३०	१०	१०	५	५०	२०	२०	१०
१३	फायलिंग कॅबिनेट	१२	३	३	२	३	२	५	५
१४	स्पेअर टेबल	२०	५	४	२	२	१	२	-
१५	स्पेअर चेअर्स	४०	१०	१०	१०	१५	१०	२०	-
१६	स्टूलस्	२०	३	३	३	५	३	१०	-
१७	कॅश बॉक्स	४	६	४	४	१(१)	१	२	-
१८	लाकडी रॅक- ५ खणांसहित	१५	२	२	२	१०	५	-	-
१९	चेस्ट ऑफ ड्रॉवर्स	-	-	-	-	२	२	-	-
२०	स्टोअर्स बिनस (३० बिनेबल आयटमस् प्रति रॅक)	११०	१०	१०	१०	-	-	-	-
२१	टাইम-पीस	-	२	२	२	-	-	-	-
२२	घडयाळ	प्रत्येक नियंत्रण कक्षासाठी एक							
		१०	२	२	२	२	१	२	-
२३	बेल	प्रत्येक बस स्थानकावर एक घडयाळ							
		-	२	२	२	-	-	-	-
२४	इलेक्ट्रिक सायरन	२	-	-	-	-	-	-	-

विभागीय कार्यालय व विभागीय कार्य शाळेसाठी प्रत्येकी १

क्र.	विभागीय कार्यालय	मागणी प्रमाण						
		आगार 'अ'	आगार 'ब'	आगार 'क'	कार्यकारी अभियंता कार्यालय	उप अभियंता यांचे कार्यालय	प्रादेशिक कार्यालय	मध्यवर्ती कार्यालय
२५	कपाट (लॉकसहित पिजन-होल)	-	-	-	-	-	-	-
२६	बकेट	-	-	-	-	-	-	-
२७	पेट्रॉमॅक्स लाइट	आवश्यकतेनुसार						
२८	लाकडी बॉक्स	१०	६	६	६	-	-	-
२९	हरिगन लॅटर्न	-	-	-	-	-	-	-
३०	टॉर्च लाइट	-	-	-	-	-	-	-
३१	टार पॉलिन	-	-	-	-	-	-	-
३२	सायकल	६	१	१	१	१	२	-
३३	स्टील बॉक्स	-	३	३	३	-	-	-
३४	सेफ	१	१	१	१	-	-	-
३५	इन्फ्लिकेटर	१	-	-	-	१	-	-
३६	टाईपरायटर	-	-	-	-	-	१	-
३७	टाईम रेकॉर्डिंग क्लॉक	लघुलेखक/ लघुटंकलेखक/ टंकलेखक/ टंकलेखक-लिपिक यांचे मंजूर संख्येनुसार						
३८	कचन काटा	१-१५० कामगारां-साठी	-	-	-	-	-	-
३९	कचन काटा (प्लॅटफॉर्म टाइप)	१	१	१	१	-	-	-
४०	अ) फॅसिट कॅम्प्युलेटर	३	१	१	१	१	१	२
	ब) इलेक्ट्रॉनिक कॅम्प्युलेटर	-	-	-	-	-	-	१
४१	मिग्रा बॅलेन्स	-	३	३	३	-	-	-
४२	एअर कूलर	बसस्थानकांच्या मागणीनुसार						
		१	-	-	-	१	-	१
४३	टेबल फॅन	अधिक तापमान असलेल्या जागांकरिता						
		५	१	१	१	१	१	३
४४	फोल्डिंग लॅडर (टीडब्ल्यू ८', ९२', १०')	१	१	१	१	-	-	-
४५	अल्युमिनिअम फोल्डिंग लॅडर २०'	आकारमानाप्रमाणे						
		-	-	-	-	१	०१	-

जोडपत्र "ब"

कार्यकारी अभियंता/ उप अभियंता यांच्या कार्यालयाकरीता मंजूर उपकरणांची यादी.

(अ)	चित्रकलेच्या आराखडयानुसार आवश्यक उपकरणे	कार्यकारी अभियंता यांचे कार्यालय	उपकार्यकारी अभियंता यांचे कार्यालय
१	लेवल विथ स्टॅन्ड		
२	लेवलिंग स्टाफ	१	२
३	बोअरिंग कंपास बॉक्स	२	४
४	पॉकेट कंपास	१	२
५	क्रॉस स्टाफ	१	२
६	टेपस् :		
	१. स्टील ३० मीटर	२	४
	२. स्टील १५ मीटर	२	४
	३. स्टील २ मीटर (पॉकेट)	२	४
	४. मेटॅलिक ३० मीटर	२	४
	५. मेटॅलिक १५ मीटर	२	४
७	चेन ३० मीटर		
८	ऑरोज	१	२
९	रिंगिंग रॉडस्	१०	३०
१०	मेन टेबल विथ असेसरीज	१०	३०
११	थिओडोलाइट विथ स्टॅन्ड	१	१
१२	ड्राईंग बोर्ड विथ टी-स्ववेअर	४	२
१३	ब्ल्यू प्रिंग/ अमोनिया प्रिटींग मशिन	१	१
(ब)	इलेक्ट्रिकल इन्स्ट्रुमेंट		
१	अर्थ टेस्टर	१	
२	मेगार	१	
३	अॅमीटर	१	१
४	व्होल्टमीटर	१	१
५	मल्टिमीटर	१	१
६	टॉग टेस्टर	१	१

जोडपत्र "क"

बस स्थानकासाठी मंजूर साधनसामग्रीची यादी.

राज्य लघुउद्योग विकास महामंडळामार्फत निर्गमित केलेल्या दरकरारानुसार खरेदी करावयाची

१	अॅम्प्लीफायर सेट (स्पीकर्स, माउथ पीस सहित)	ज्या बसस्थानकावर गाड्यांचे आगमन व प्रस्थान (arrival / departure) २०० पेक्षा जास्त आहे, त्यांना प्रत्येकी १.
२	जिप्सी हटस्	आवश्यकतेनुसार
३	लाकडी बाके	आवश्यकतेनुसार

वाहक / चालक विश्रांतीगृहासाठी मंजूर साधनसामग्रीची यादी.

१	कॉटस्	रात्र वस्तीसाठी असणाऱ्या प्रत्येक ब्र्यू मॅबरसाठी १
२	डयुरी	प्रत्येक विश्रांतीगृहासाठी १
३	लॉकर सेट	रात्र वस्तीसाठी असणाऱ्या २४ ब्र्यू मॅबरसाठी १ सेट

जोडपत्र 'ड'

नव्याने समाविष्ट केलेल्या कार्यालयीन उपकरणांची यादी.

अ. क्र.	वस्तू/ उपकरणे (मागणी प्रमाण आवश्यकतेप्रमाणे)
१	वॉटर कुलर
२	वॉटर फिल्टर/अॅक्वागार्ड/वॉटर प्युरिफायर
३	एअर कंडिशनर
४	इरोक्स मशिन
५	फॅक्स मशिन
६	बायोमेट्रिक मशिन
७	टाईम पचिंग मशिन
८	इलेक्ट्रॉनिक रिसोग्राफ डिजीटल ड्युप्लिकेटर मशिन.
९	बेसिक डिजीटल कॉपीयर
१०	जनरेटर
११	इन्व्हर्टर
१२	लॅपटॉप /नोटबुक
१३	टि.व्ही.
१४	व्ही.सी. आर./ डी.व्ही.डी.
१५	स्कॅनर
१६	संगणक (PC)
१७	प्रिंटर

SPECIFICATION :

Generators (GEN)

A) Portable Generator (PG)

Scope:

Specification No (GEN-PG)

The work includes supplying, erecting, final testing, putting in to operation and handing over of the complete system of portable generator set with petrol start & Kerosene run suitable to give specified output at 220 V +/-13 volts A. C. with accessories like tool kit and comprehensive maintenance of the installation up to 1 year from date of commissioning.

Material:

Portable generator suitable to give output 1400 VA/ 2000 VA output Generator with built in voltmeter, non fuse circuit breaker, along with one set of tool kit comprising of one spanner, screw driver spark plug opener & Oil, fuel etc.
Portable Generator shall be of standard design and of original manufacturer with petrol start and kerosene run engine of 4 stroke, single cylinder, TCI ignition system, centrifugal governor, air cooled, semi dry type air cleaner and recoil starter, noise suppressor, oil alert system, with brushless, self exciting, two pole, rotating field type and with "E" class insulation alternator suitable to give specified output, duly tested at full load for continuous 2 hours with first filling of oil and fuel.

Mode of Measurement: Executed quantity will be counted on number basis. (i.e. each)

B) Diesel Generator (DG)

Scope:

Specification No (GEN-DG)

Providing D.G. Set at site, carrying out all preparatory works, assembling, installing, making adjustments, confirming all pre-commissioning requirement as per manufacturer's instructions, commissioning, final testing, putting in to operation and handing over of the complete system of D.G. set including inspection from inspectorate office. The work include necessary minor Civil works including opening on wall/Slab/floor and making good as it was etc. & comprehensive maintenance of the DG set for 1 year from date of commissioning.

Material:

Diesel Generator set with continuous rating, 3 Phase, 415 V., 50 Cycles A.C. supply of specified capacity, comprising of totally enclosed air/water cooled diesel engine with standard control panel & tool kit. (Refer drawing no. GEN-DG-1 & GEN-DG-2)

Diesel Engine:

The engine shall be of standard design of original manufacturers. It should be a totally enclosed air/water cooled Diesel engine with 4 stroke multi cylinders developing suitable BHP (As per Table 11/3) for giving power rating of (As per table 11/3) at the load terminals of alternator at 1500 R.P.M., at armature temperature of 400 C for height at 1000 Meter above M.S.L. at 50% R.H. The engine shall be capable of delivering specified power at variable loads for P.F. of 0.8 (lag) with 10% over load available in excess of specified output for one hour in every 12 hours. The average load factor of the engine over period of 24 hours shall be 0.85 for power output. The engine shall conform to IS: 10000 and Amended up to date.

The engine shall be fitted with following accessories:-

- 1) Dynamically balanced fly wheel.
- 2) Necessary flexible coupling and guard for alternator and engine applicable
- 3) Lubricating oil cooler
- 4) Air cleaner Dry/Bath type
- 5) Lubricating oil pressure gauge
- 6) Lubricating oil filter with replicable element
- 7) Dry exhaust manifold with suitable exhausts heavy duty residential type exhaust silencer and vertical hot air duct both lagged with asbestos rope exhaust piping of required length to reduce noise level.
- 8) 12/24 V. Electric starting equipment complete with standard batteries, dynamo, cut-out, ammeter, necessary wiring, self starter etc. The system shall be capable of starting D.G. set within 20 to 30 second even in winter condition with an ambient temperature down to 00 C
- 9) Mechanical Governor of Class A2 for up to and including 200 KVA capacity and electronic governor of Class A1 for capacity above 200 KVA shall be provided as per standard design of manufacturer. Governor shall be a self contained unit capable of monitoring speed.
- 10) Radiator
- 11) Daily fuel Tank
Daily fuel service tank of minimum capacity as per Table 11/1, below, fabricated from M.S. sheet with inlet, outlet connections air vent tap, drain plug and level indicator (gauge) M.S. fuel piping from tank to engine with valves, unions, reducers, flexible hose connection and floor mounting pedestals, twin fuel filter. The location of the tank shall depend on standard manufactures design.

Table 11/1
Minimum capacity of Daily fuel tank for Generators

Sr. No	Capacity of D.G. set	Minimum Fuel Tank Capacity
1.	Up to 25 KVA	100 Liters
2.	Above 25 KVA to 62.5 kVA	120 Liters
3.	Above 62.5 KVA to 125 KVA	225 Liters
4.	Above 125 KVA to 200 KVA	285 Liters
5.	Above 200 KVA to 380 KVA	520 Liters

Engine Control Panel:

Engine control panel should be fitted with following accessories/indicators and shall have display:-

- Start/stop key switch
- Lube oil pressure indication
- Water temperature indication
- RPM indication
- Engine Hours indications
- Battery charging indication
- Low lube oil trip indication
- High water temperature indication
- Over speed indication

Battery Charger:

The battery charger shall be of Trickle & Boost type, and suitable to charge required numbers of batteries at 12V/ 24 Volts complete with, transformer, rectifier, charge rate selector switch, indicating ammeter, voltmeter, battery over charging protection with audible alarm. Connections between the battery charger & batteries shall be provided with suitable copper leads with lugs.

Battery:

Battery capacity and copper cable sizes for various engine capacities shall be as per the details given in Table No 11/2. Cable sizes shown are for maximum length of 2m length, if higher size of cable is required, it shall be selected in such a way that voltage drop does not exceed 2 V.

Table 142
Battery Capacity and Copper Cable Sizes for Various Engine Capacities

S.No.	D G Set Capacity	Battery Capacity (AH)	Copper Cable size in mm ²	Electrical System (Voltage)
1	Upto 25 kVA	88	35	12
2.	Above 25 kVA upto 62.5 kVA	120	50	12
3.	Above 62.5 kVA upto 82.5 kVA	150	50	12
5.	Above 82.5 kVA upto 125 kVA	180	50	24
6.	Above 125 kVA upto 500 kVA	180	70	24

For AMF applications, a static battery charger working on mains supply recommended to keep the batteries charged at all times.

Alternator:

Alternator of specified rating, 415 Volts, 1500 RPM, 3 Ph, 50 HZ, A/c Supply with P.F 0.8 lagging at 40°C armature temperature for height 1000 mtr. Above MSL at 50 % R.H. alternator shall be brush less type self regulated having static excitation system having capacity of desired output conforming to IS: 4722-1968 with automatic voltage Regulation + 5% operated voltage from no load to full load, two numbers of earth terminal on opposite sides. Terminal box shall be suitable for underground cables and same shall be with stand mechanical and thermal stresses developed due to any short circuit at the terminals. The alternator shall be in accordance with following standards:-

- IS: 4722 The performance of rotating electrical machines
- IS: 4889 Rules for method of declaring efficiency of electrical machines
- IS: 13364 Part I 1992 Alternator-voltage Regulation up to 20 KVA
- IS: 13364 Part II 1992 Alternator Voltage regulation above 20 KVA to 20 KVA

Performance:

Voltage dip shall not exceed 20 % of the rated voltage for any step load or transient load as

per IS: 8528 (Part I). The winding shall not develop hot spots exceeding safe limits due to

unbalance of 20% between any two phases from no load to full load.

The performance characteristics of the alternator shall be as below:-

- (a) Efficiency at full load 0.8 P.F. (i) Up to 25 KVA- not less than 82 %
- (ii) Above 25 KVA and up to 62.5 KVA- not less than 86 %
- (iii) Above 62.5 KVA/upto 250 KVA- not less than 90 %
- (iv) Above 250 KVA- not less than 93 %
- (b) Total Distortion factor Less than 3 %
- (i) 10 % Overload One Hour in every 12 hrs of continuous operation
- (ii) 50% overload 15 seconds.

Common Base Plate:

Engine and alternator shall be coupled by means of flex plate/flexible coupling as per manufacturer standard design and both units shall be mounted on a common base plate together with all auxiliaries to ensure perfect alignment of engine and alternator with minimum vibrations. The base plate shall be suitable for installation on suitable antivibration mounting system comprising of 6 anti-vibration pads duly provided.

Control Panel:

Floor/wall mounted control panel Box comprising of voltmeter, ammeter, selector switches MCCB/MCB of adequate capacity, indicator lamp duly wired with HRC fuses. Alternator & control panel shall be connected with provided suitable capacity armored cable with necessary cable glands & lugs etc.

Exhaust system:

It shall comprise of following parameters:-

Exhaust system should create minimum back Pressure.

Smooth bends shall be used for minimizing the back pressure.

Minimum number of bends shall be used for minimizing the back pressure.

Pipe sleeve of larger diameter should be used while passing the pipe through

concrete wall & gap shall be filled with felt lining.

Exhaust piping inside the Acoustic enclosure / Generating set room should be lagged with asbestos rope and covered with aluminum sheet cladding to avoid heating of the area.

Class 'B' MS pipes and long bend/elbows should be used.

The exhaust outlet should be in the direction

Factory Testing:

DG set shall be tested in presence of Engineer in charge or his authorized representative in the factory for following before dispatch;

- Full load trial for 12 hour. Fuel, lubricating oil, etc shall be arranged by the agency.
- 10% overload trial for one hour within 12 hrs test.

Certificates:

- Manufacturer's test certificates for Engine, Alternator and of the set.
- Necessary certificate for the engine model so selected along with compliance of noise and emission norms as per latest CPCB guidelines for D.G. set should be furnished from the manufacturer along with manufacturer's technical details.
- Permission from Electrical Inspector.

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Method of Construction:

The IIG Set with canopy shall be erected with due care and ensuring the perfect level with the help of Spirit level, on provided cement concrete foundation and connecting the provided earthing connections. The exhaust system shall be connected to the exhaust manifold. After ensuring the filling of fuel, lubricating oil and medium of cement, the set shall be commissioned, with giving necessary full load trials or with the available load at site. The set shall then be handed over to the department along with the installation report given by the manufacturer and with all the necessary certificates and permissions obtained.

Mode of Measurement: Executed quantity will be counted on number basis. (i.e. nos.)

ANNEXURE 'I' (CR 9471)**Delegation of powers**

Sr. No.	Subject of delegation	Limit	Delegatee	Resolution & Date
1.	To hire residential accommodation for staff and officers.	Upto the monthly rate of ₹750/- in each case.	R.M. for Regions. W.M. for Central Workshops. G.M. for the rest.	C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
2.	To write off irrecoverable recoveries	Upto ₹100/- in each case.	R.M. for Regions. W.M. for Central Workshops.	C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
3.	To purchase necessary spares for machinery as per actual requirements	Upto ₹20,000/- at a time.	W.M. for Central Workshops.	C.R.9471, dt 30/3/1981.
4.	To sanction or to incur expenditure in case of emergencies.	Upto ₹ 250/- in each case.	R.M. for Regions. W.M. for Central Workshops. Dy.G.M.(Tr.) for the rest.	C.R.8318, dt 24/9/1975 & C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
5.	To decide whether the corporation should file a suit for revenue recoveries or recoveries in respect of loss or damage to or by S.T. vehicle.		R.M. for Regions. W.M. for Central Workshops. VC & GM for the rest.	C.R.8318, dt 24/9/1975 & C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
6.	To sanction decretal amount.		R.M. for Regions. W.M. for Central Workshops. L.A. for the rest.	C.R.8318, dt 24/9/1975 & C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
7.	To sanction honorarium to conductors, Paper Setters and Examiners for examinations for promotion/recruitment		R.M. for Regions. W.M. for Central Workshops. M (P) for the rest.	C.R.8318, dt 24/9/1975 & C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
8.	To purchase furniture (on the basis of approved standards)		R.M.O. for Regions. W.M. for Central Workshops. M (P) for the rest.	C.R.8318, dt 24/9/1975 & C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.

Sr. No.	Subject of delegation	Limit	Delegatee	Resolution & Date
9.	To sanction expenditure for celebrating anniversaries and functions.	Upto ₹.500/-per year.	R.M. for Regions. W.M. for Central Workshops.	C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
10.	To sanction expenditure on refreshments served to distinguished guests and in connection with meetings and Conferences.	Upto ₹ 750/-on each occasion. Over ₹ 750/- on each occasion.	R.M. for Regions. W.M. for Central Workshops. V.C.&G.M.	C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
11.	To sanction disposal of vehicles which are fully depreciated and have completed stipulated kms.		Dy.G.M.(ME) with concurrence of C.A.O. R.M.with concurrence of R.E.& F.& A.O. W.M. for Central Workshops with concurrence of Accounts Officer.	C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
12.	To sanction D.A.for the period exceeding 50 days but not exceeding 90 days for training outside Headquarters.		R.M. for Regions. W.M. for Central Workshops.	-do-
13.	To write off fuel losses.	Upto the prescribed limit.	R.M. for Regions. W.M. for Central Workshops.	C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.
14.	To grant permission to any employee to act as an examiner in an examination conducted by Government or public bodies .		Deptl.Head/ Branch Head for Central Office W.M. for Central Workshops. R.M. for Regions.	C.R.8467, dt 31/3/1976 & C.R.9471, dt 30/3/1981.
15.	To sanction drivers in the prescribed payscale per deptl. vehicle when required.	Not exceeding the No.of vehicles plus leave reserves.	Deptl.Head . R.M. for Regions. W.M. for Central Workshops.	C.R.8467, dt 31/5/1976 & C.R.9471, dt 30/3/1981.

Sr. No.	Subject of delegation	Limit	Delegatee	Resolution & Date
16.	To forward application of Class III & IV employees to outside agencies.	-	DC for Class III Unit cadre and Class IV employees. WM for Central Workshops for Class III Unit cadre & Class IV employees. M(P) for Class III State cadre & Class III & Class IV employees of the remaining Units.	C.R.8591, dt 31/3/1977 & C.R.9471, dt 30/3/1981.
17.	To grant House Building Advance	Class III & IV employees.	R.M. for Regions. W.M. for Central Workshops	C.R.8591, dt 31/3/1977 & C.R.9471, dt 30/3/1981.
18.	a) To write off fully depreciated machinery b) To purchase machinery in replacement of BER machinery.	Upto ₹10,000/- Upto ₹20,000/- Upto ₹10,000/- Upto ₹20,000/-	R.M. for Regions. W.M. for Central Workshops. R.M. for Regions. W.M. for Central Workshops.	C.R.9471, dt 30/3/1981. C.R.9471, dt 30/3/1981.

COPY OF CORPORATION RESOLUTION 9471, DATED 30TH MARCH 1981.

"The Corporation considered the proposal of the Administration for the delegation of powers to the Works Managers of all the three Central Workshops in order to assist them in the quick disposal of work with a view to stepping up the rate of production. The Corporation accorded the approval to the delegation of powers to the Works Managers of the three Central Workshops as shown in Annexure 'I' appended hereto. The Corporation, however, observed that in order to ensure that the powers delegated are exercised properly and judiciously, all the conditions/ restrictions/ constraints in the use of these powers which have been imposed by the Administration in the case of other Competent Authorities to whom the powers have earlier been delegated, should be brought to the notice of the Works Managers.

The Corporation also directed that in the case of the power to write off fully depreciated machinery and for the purchase of machinery in replacement of BER machinery which are delegated for the first time to time Works Managers, guidelines should be prescribed and the Administration should take a review at the end of specified period, say one year, in order to ensure their proper exercise".

Method of Construction:

The DG Set with canopy shall be erected with due care and ensuring the perfect level with the help of Spirit level, on provided cement concrete foundation and connecting the provided earthing connections. The exhaust system shall be connected to the exhaust manifold. After ensuring the filling of fuel, lubricating oil and medium of coolant, the set shall be commissioned, with giving necessary full load trials or with the available load at site. The set shall then be handed over to the department along with the installation report given by the manufacturer and with all the necessary certificates and permissions obtained.

Mode of Measurement: Executed quantity will be counted on number basis. (i.e. each)

Table No 11/3
Rating of Alternator and minimum BHP of Engine

S No.	KVA Capacity of Alternator	Minimum BHP of Diesel Engine	Average Fuel consumption litre per hour at 100 % Load
1	10	12	3.0
2.	15	19	4.1
3.	20	26	6.0
4.	25	32	6.4
5.	5 30	42	8.3
6.	6 40	50.5	10.3
7.	50	65.8	13.0
8.	62.5	76	15.6
9.	75	91	16.0
10.	82.5	102	18.6
11.	100	127	22.8
12.	125	154	28.0
13.	140	166	30.0
14	160	198	34.3
15.	180	235	40.0
16.	200	254	44.0
18.	250	313	54

Automatic Mains Failure Panel (AMF)

Scope:

Specification No (GEN-AMF)

The work includes supplying, installing, Testing & commissioning of automatic mains failure control panel including auto by-pass, suitable for specified rating of DG Set complete with accessories and comprehensive maintenance of the panel up to 1 year from date of commissioning.

AMF Panel shall comply following IS specification:

IS: 2147 1962 Degree of protection.

IS: 4722 H.V. testing for panel

Material:

Panel shall consist of following:

Power module a pair of electromechanically interlocked contactors for all the phase / phases & neutral. (For mains & generator) Overload relay for generator contactor, neutral contactor for mains and generator.

Control and Metering module: Line voltage monitor. Generator voltage monitor, Ammeter, 3 times attempt to start facility.

MCB/MCCB of suitable rating for auto/manual operation. Auto/manual switch. Emergency stop push buttons.

Manual start push button.

Frequency meter.

Engine hour and RPM meter. (Taco meter)

Two earthing studs. Protection module: The engine shutdown in the unlikely event of low lube oil pressure, high cylinder head temperature, high water temperature (For water cooled engine) Indicators with alarm for Full/ Maximum Load on generator. Indicators for Load on mains, Load on D.G. set, Engine fails to start, Emergency stop.

Battery charger complete with transformer/ rectifier, D.C Voltmeter and Ammeter, selector switch for trickle, off, and boost charging and current adjustment.

Main supply failure monitor.

Timers.

Fault reset push button.

Method of Construction:

AMF Panel complete with relays, timers, set of CT's for metering & protection and energy analyzer to indicate currents, phase and line voltages, frequency, power factor, KWH, KVARH & provision for overload, short circuit, fault, under frequency, control cabling from AMF panel to diesel engine and elsewhere if required, complete with metering as per material list.

System Operation:

The above-mentioned facilities provided shall be functional for following operational requirements:

1. Auto Mode

- A line voltage monitor shall monitor supply voltage on each phase when the mains supply voltage falls completely or falls below set value (variable between 80 to 95 % of the normal value) on any phase, the monitor module shall initiate start-up of diesel engine. To avoid initiation due to momentary disturbance, a time delay adjustment between 0 to 5 second shall be incorporated in start-up intimation.
- A three attempt starting facility shall be provided 6 seconds ON, 5 seconds OFF, 6 seconds ON, 5 Seconds OFF, 6 seconds ON. If at the end of the third attempt, the engine does not start it shall be locked out of start and a master timer shall be provided for this function, suitable adjustment timers are to be incorporated which will make it feasible to vary independently ON-OFF setting periods from 1-10 seconds, if alternator does not build up voltage after the first or second start as may be the case, further starting attempt will not be made until the starting facility is reset.
- Once the alternator has built up voltage, the alternator circuit breaker shall close connecting the load to the alternator. The load is now supplied by the alternator. When the main supply is restored and is healthy as sensed by the line voltage monitor setting, both for under voltage or unbalance, the system shall be monitored by a suitable timer which can be set between 1 minute to 10 minutes for the load to be transferred automatically to main supply.
- The panel shall start the set in the event of fault condition of under voltage, over voltage, phase reversal, high frequency, neutral snapping, short circuit, etc., on the mains side. If the above fault condition arises if the load is being fed from the DG Set, then the panel start cut off the load from the set with an audible alarm, and the set shall run on no load.

2. Manual Mode:

- In a manual mode, it shall be feasible to start-up the generator set by the operator on pressing the start push button.
- Three attempts starting facility shall be operative for the start-up function.
- Alternator circuit breakers closing and trip operations shall also be through operator only by pressing the appropriate button on the panel and closed shall be feasible only after alternator has built up full voltage.

3. Test Mode:

- When under test mode, pressing of test button should complete the start up sequence simulation, and engine shall be started.
- Engine shall build up voltage but the set shall not take load by closing alternator circuit breaker when the load is on the mains, monitoring performance for voltage/ frequency etc. shall be feasible without supply to load
- If during test mode, the power supply has failed, the load shall automatically get transferred on DG Set.
- Bringing the mode selector to auto position shall shut down the set provided main supply is ON if the mains supply is not available at that time, the alternator shall take load.

Mode of Measurement: Executed quantity will be counted on number basis. (i.e. each)

~~113~~ Acoustic Enclosure (AEC)

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DESCRIPTION

Code:

Specification No (GEN-AEC)

The Work includes supplying & erecting the Acoustic Enclosure (Canopy) fabricated from CRCA sheet of specified gauge, suitable for indoor / outdoor installation exposed to weather conditions & to limit overall noise level to 75 dB at distance 1 meter from the enclosure as per CPCB / MPCB norms under free field condition.

Material:

Acoustic enclosure (canopy) shall be fabricated out of the CRCA sheet of thickness not less than 1.6 mm on the outside cover with inside cover having not less than 0.6 mm thick perforated power coated CRCA sheet.

Method of Construction:

The construction of Acoustic enclosure (canopy) should be such that, it shall prevent entry of rain water splashing into the enclosure; and shall allow free & quick flow of rain water to the ground in the event of heavy rain.

The detailed construction shall conform to the details as under:-

The hinged doors shall be made from not less than 16 SWG (1.6 mm) thick CRCA sheet and will be made air tight with neoprene rubber gasket and heavy duty locks.

All sheet metal parts should be processed through 7-tank process.

The enclosure should be powder coated.

The enclosure should accommodate the daily service fuel tank of the D.G. set to make the system compact.

There should be provision of fuel gauge, which should show the level of the fuel even when the DG set is not running. The gauge should be calibrated. The fuel tank should be filled from the out side as in automobiles and should be with a lockable cap.

The batteries should be accommodated in the enclosure in battery rack.

The canopy should be provided with high enclosure temperature safety device.

The acoustics lining should be made up of high quality insulation material/ glass / mineral or rock wool of minimum 50 mm thickness and shall be of 75 kg/m³ to 100 kg/m³ density for sound absorption as per standard design of manufacturers to reduce the sound level as per CPCB norms. The insulation material shall be covered with fine glass fiber cloth and would be supported by perforated MS sheet duly powder coated.

The enclosure shall be provided with suitable size and No. of hinged type doors along the length of the enclosure on each side for easy access inside the acoustic enclosure for inspection, operation, and maintenance purpose. Sufficient space will be provided inside the enclosure on all sides of the D.G. set for inspection, easy maintenance, and repairs.

The canopy should be as compact as possible with good aesthetic look

The complete enclosure shall be of modular construction.

The forced ventilation shall be as per manufacturer design using either engine radiator fan or additional blower fans. If the acoustic enclosure is to be provided with forced ventilation then suitable size of axial flow fan with motor (Auto-start arrangement) and suitable size of radial flow exhaust fan to take the hot air from the enclosure complete with necessary ducts and auto start arrangement should be provided. The forced ventilation arrangement should be provided with auto stop arrangement to stop after 5 minutes of the stopping of D.G. sets.

The acoustic enclosure should be suitable for cable connection through bus-trucking. Such arrangements on acoustic enclosure should be water proof and dust-proof conforming to IP-65 protection.

Mode of Measurement: Executed quantity will be counted on number basis. (i.e. each)

SPECIFICATION :

Split type Air Conditioners (SAC)

Scope:

Specification No (AP-AC/SAC)

Supplying, erecting, and testing Split type room air- conditioner of specified tonnage, conforming to I.S.1391, having one/two air handling units Hi-wall / ceiling (suitable for false ceiling) mounting type having cooling unit and the outdoor condensing unit connected with 12/9 mm copper piping up to 6 meter duly insulated and 3 core copper flexible cord of required length etc. with stand for condensing unit, complete with testing etc. (Conforming to IS: 1391 Part-I & Part-II with all amendments & as per BEE) suitable for operation on single phase, AC supply, 230/250 Volts 50 Hz, using best quality compressor, and fitting in position as per site situation and as directed by site engineer, duly connected to supply, and marking of S No. and date of erection.

The AC unit shall be capable of performing following functions:

- Cooling
- Dehumidifying
- Air Circulating
- Air Filtering
- Ventilation

The Split type AC should be minimum 3 Star rating as directed by B.E.E

Material:

Compressor:

The air conditioners shall be fitted with hermetically sealed type suction cooled reciprocation or discharge cooled rotary compressor (as applicable), compressor unit operating on Refrigerant R-22 with suitable rated capacitor start electric motor. It shall be equipped with overload protection. These shall be mounted on resilient mountings for quiet operation. The compressor shall conform to IS: 10617 part (1) - 1983 (amendment 1 & 2)

The air conditioners shall be complete with automatic temperature control and cut-in and cut-out etc. for temperature range 16 degrees to 35 deg. C. The differential of the thermostat for cut-in and cut-out shall not be greater than +/- 1 degree Centigrade.

Outdoor Cabinet:

The cabinet of the evaporator unit and condensing unit shall be made from galvanized steel sheet of 1.0mm thick with stiffness for robust construction and shall have rounded corners, steel parts/front panel etc. shall have stove-enameled finish preceded by undercoat of anticorrosive primer paint phosphate and through cleaning of the surface. Alternate method of corrosion protection like plastic powder coating, electrostatic paintings are also acceptable in lieu of stove enameled finish. Galvanized sheet shall conform to IS: 277/ 2003.

Indoor Unit:

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The indoor units made of ABS/HIPS shall be of flame retardant and impact resistant life.

ABS/HIPS indoor unit cabinet shall pass in flammability test requirement for Grade V-0 as per UL -94. For impact resistance the unit duly packed, when dropped from a height of 1 metre shall show no damage.

Air Filter: The air filters provided shall be of cleanable type and made of synthetic material.

Thermostat: Thermostat or electronic thermostat as per IS 11338: 1985.

Condenser: As per (FG-FG/AS7) specified in chapter 2.4

Piping:

Suction line -Copper pipe of min 0.70mm thickness and of suitable diameter as per manufacturers design.

Liquid line -Copper pipe of min 0.70mm thickness and of suitable diameter as per manufacturers design.

Drain pipe -15mm dia flexible PVC pipe.

Connection Cable: Suitable capacity 3 Core PVC insulated FRLS copper wire to be electrically connected to both the units.

Paint: Superior quality enamel paint of specified colour.

Remote Control: Remote control (Cordless) shall be provided with one On/Off timer, selecting Fan speed (Three speeds) and setting up of temperature.

Drain Pipe: Drain pipe (15mm dia flexible PVC pipe).

Method of Construction:

The installation shall comprise the following work:

- Mounting/Fitting indoor & outdoor units at the respective locations on provided MS stands with necessary hardware's.
- Laying refrigerant piping of 6m length and connecting both the units after drilling hole/holes in the wall, if required. The thickness of the copper tubing shall not be less than 0.70mm and diameter of required size by flaring, threading, etc.
- Insulating the suction pipe with expanded polyethylene or foam 5mm tubing.
- Laying 15mm drain pipe to throw out the condensate water formed in the indoor unit.
- Leak testing of the entire system.
- Charging Refrigerant gas in the unit.
- Suitable electric wiring between indoor and outdoor units up to 6 m length & up to switch within 3 metre of location of indoor unit.
- Testing and giving satisfactory trials.

Mode of Measurement: Executed quantity shall be counted on number basis. (i.e. each)

SPECIFICATION :

Water Coolers, Refrigerators

A) Water Coolers (WC)

Scope:

Specification No (AP-WCR/WC)

Supplying, erecting, testing and commissioning self contained water cooler with specified storage capacity & cooling capacity, and marking S No and date of erection.

Material:

Water Cooler:

The water cooler shall be suitable for operation on 230 V +/- 10% , 50 Hz, single phase AC supply with hermetically sealed type suction cooled compressor with overload protection conforming to IS :-10617(part I) : 1983 with amendment no 1&2.

Tank:

Tank shall be fabricated from SS sheet of 0.8 mm min. thickness as per ISI 304 and shall be made by electrically seam welded lap joints or alternatively from 0.63 mm thickness stainless steel sheet with PUF insulation, with required number of Taps. However tank fabricated by double seam jointing is also acceptable if the same is reinforced and sealed by lead free solder material. Use of lead soldering material for sealing the joints of water tank is not permitted. Water tank cover and lid bottom shall be made of 1.25 mm aluminum sheet duly anodized / epoxy painted / high impact polystyrene (HIP) of 1.5 mm thickness. Positive locking of the lid is to be provided (lock with two keys). A drain valve at the bottom of the storage tank to be provided to draw out water while cleaning.

Cabinet (Body):

The cabinet of the water cooler shall be made of GS or SS sheet of 1.0 mm. The front panel, below the water outlets in the storage type water coolers shall be made of stainless steel of 0.8 mm. The drain pan for storage type water coolers shall be made of stainless steel sheet of 0.63 mm upto size 40 liters/hour and beyond 40 liters/hour of 0.8 mm thickness. The bottom pedestal shall be made of 2.65 mm minimum thick stainless steel sheet. Pedestal shall have a minimum ground clearance of 100 mm for ease of cleaning.

Pedestal shall be strong enough to withstand weight with storage tank full and shall be reinforced to prevent skewing. The body shall be held securely with the pedestal with stainless steel nuts and bolts. The drain size should be 25 mm or above. In case water outlets are provided on three sides then all the three lower panels should be made of aluminium sheet or stainless steel sheet.

The mild steel components used in the manufacture of the cabinet shall be individually degreased, pickled, scrubbed and rinsed to remove grease, rust, scale or any other foreign elements. Immediately after pickling the MS parts shall be given phosphate treatment. The components along with the front panels shall then be given a primer coat with a finish coat of stove with a finish coat of stove enamel paint. The finish shall be smooth and uniform with hard tough film of the enamel adhering to the surface. The finish shall be free from all the visible defects and shall not chip when tapped lightly with a dull pointed instrument.

Alternatively method of corrosion protection like plastic powder coating, electrostatic painting shall be permitted Refrigeration coils to be fully soldered to the outside of the tank for good thermal contact and not merely tack welded. There shall not be any gap between water tank cover (mask) and water tank to prevent rodent/ insect/ dust entry.

Water tank overflow should be adequately covered with strainer such as wire mesh etc to avoid rodent/ insect/ dust entry.

Condenser Fan Motor: The condenser fan motor shall be capacitor start and capacitor run (CSR) or permanently split capacitor (PSC) or alternatively permanently lubricated motor may be provided.

Thermostat: The thermostat shall conform to IS: 11338-1985. The position of the thermostat shall be adjustable through a rotary switch mounted on the front or side panels. Min and max of the thermostat setting shall be from 0 degree Celsius and 25 degree Celsius which shall be marked.

Method of Construction:
The water cooler shall be fixed at designated place or as directed by the site engineer, duly connected with inlet and drain by leak proof joints. The water cooler is to be erected on stand and tested.

Mode of Measurement: Executed quantity shall be counted on number basis. (i.e. each)

Specification of Water purifier

Ultra violet water purifier with softner for safe drinking water consisting of UV germicidal tube of 8 watt capacity choke made of copper wire & two indicators lamps with output of purified water 5 litre /minute with activated carbon filter and softner operating 230 V. Single phase A.C. supply.

SPECIFICATION :

7E

Inverter (AP-INV)

General

This part of the specifications covers the technical aspects of the Digital pure Sine wave Inverter.

Scope:

Supplying, erecting, testing & commissioning of Digital pure sine wave Inverter with necessary safeties, etc.

Specification No (AP-INV)

Material:

Equipment manufactured as per standard manufacturer's specification. The unit housed in powder coated CRCA sheet enclosure with following fault protection on mains / inverter

mode:

- Under voltage on mains mode
 - Over voltage on mains mode
 - Charger protection on mains mode
 - Overload on inverter mode
 - Short circuit on inverter mode
 - Low battery on inverter mode
 - Battery reverse on inverter mode
 - Under voltage on inverter mode
 - Over voltage on Inverter mode
 - LED display for above fault protection
 - Alarm for above fault protection
 - Arrangement to cut of neutral of supplier when supply from invertors is on.
- In addition to above the inverter shall comply with the specifications mentioned

Table No. 0.54
Additional Specifications for Inverter

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Sr. No.	Specifications / Features		Standard Parameters
1.	Input AC range	Under Voltage Under Voltage restoration Over Voltage Over Voltage restoration	180 +/- 5 V 185 +/- 5 V 260 +/- 5 V 255 +/- 5 V
2.	Output on Inverter Mode	Maximum power Minimum Efficiency Voltage (Inverter mode) Frequency (Inverter mode) Overload Transfer time	As specified 85 % (As per Clause 7.9.3 of ISS) 230 V Nominal +/- 12% 50 Hz +/- 2% > 110% for 10 minutes 30 ms
3.	Conversion	Switching device Harmonic distortion	MOSFET or IGBT. < 5 %
4.	Inverter mode protection	Low battery Battery reverse Over load Short Circuit	Electronic trip Through fuse Electronic trip Electronic trip
5.	Mains mode protection	Over load / Short Circuit Charger	Through MCB Through MCB
6.	Battery	Charging time	10 - 12 hours
7.	Battery charger	Constant voltage with current limit	10 amp with boost voltage & float voltage
8.	LED Display	Switch On, Inverter ON, Low battery Pre-alarm, Battery low, Mains ON, Smart charge, Overload, Short Circuit, Battery fuse fail, Battery reverse, MCB Trip.	As per manufacturer's standard specification
9.	Alarms	Low battery Pre-Alarm Overload Pre-alarm Short Circuit MCB Trip	Continuous beeping Continuous beeping Continuous beeping Continuous beeping
10.	Environmental	Operating temperature Storage temperature Humidity	0 - 400 C 0 - 400 C 0 -95 % RH non-condensing
11.	Enclosure	CRC/MS sheet minimum 1.2 mm thick	Aesthetically finished, duly pre treated and powder coated.

Mode of Measurement:

Executed quantity will be measured on number basis (10000)

SPECIFICATION :

Air Conditioners (AC)

A) Window Model Air Conditioners (WAC)

Scope:

Specification No (AP-AC/WAC)

Supplying, erecting, and testing Window model room air conditioner of specified tonnage, conforming to I.S.1391 suitable for operation on single phase, AC supply, 230/250 Volts 50Hz, using best quality compressor, dehumidifier in provided air circulating, ventilators and

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fitting in position in recess or in window to required size, and connected to supply, and marking of S No. and date of erection.

The AC unit shall be capable of performing following functions:

- Cooling
- Dehumidifying
- Air Circulating
- Air Filtering
- Ventilation

The Window AC should be of minimum 3 Star rating as directed by B.E.E.

Material:

Compressor:

The room air conditioners shall be fitted with hermetically sealed type suction cooled (Reciprocating) or discharge cooled (Rotary) compressor with suitable rated capacitor start electric motor. It should start unloaded and shall be equipped with overload protection. The compressor shall be mounted on resilient mountings for quiet operation. The compressor shall conform to IS.10617 (part-1): 1983 with amendment 1 & 2.

Cooling capacity for Compressors shall be as under:

For 1.5 Ton - Minimum 4750 kcal/hour

For 2.0 Ton - Minimum 6250 kcal/hour

Energy efficiency ratio for Compressor shall be minimum 2.625 kcal/hour/watt.

Cabinet:

The cabinet of the air conditioner be made from either galvanized MS sheet of 1mm thickness or aluminium alloy sheet of 1.2mm thickness. The sheets shall be suitably stiffened by embossing the fabrication work and shall be of suitable workmanship. The sheets shall be suitably phosphate and protected by powder coated paint. The galvanized steel sheets shall conform to IS: 277:2003 and have a coating grade of 120 gm/m².

Air Filter: The air filters provided shall be of cleanable type and made of synthetic material.

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Thermostat:

The air-conditioner shall be fitted with thermostat suitable for a working range from 16 degree Centigrade to 35 degree Centigrade with a differential of +/-1 degree Centigrade, with operational voltage as 240V and current rating not exceeding 25 amps. The thermostat shall conform to IS: 11338:1985.

Condenser: As per (FG-FG/AS7) specified in chapter 2.4

Paint: Superior quality enamel paint of specified colour.

Method of Construction:

The AC unit shall be fixed in the recess/window with necessary materials. The outer frame shall be fitted to recess or cutout made in window making the recess/window air tight, duly connecting the unit to power supply by means of metal clad switch & plug and giving satisfactory trials.

Mode of Measurement: Executed quantity shall be counted on number basis. (i.e. each)

Specifications of Personal Computers

Sr. No.	Description	Specifications	Remark
1	CPU	Intel Core 2 Duo E7600, 3.6 GHz, 3 MB L2 Cache and 1066 MHz FSB	
2	Chipset	Intel 4 series/ nVidia CForce 7 series or better on OEM Motherboard	
3	Bus Architecture	Integrated Graphics, 2 PCL 1 PCI Express x 1 and 1 PCI Express x 16	
4	Memory	2 GB 1066 MHz DDR2 RAM with 4 GB Expandability.	
5	Hard Disk Drive	320 GB 7200 rpm serial ATA HDD	
6	Monitor	47 cm (18.5 inch) TFT Digital Colour Monitor TCO-05 certified.	
7	Keyboard	104 keys.	
8	Mouse	Optical	
9	Bays	4 Nos. (2 Nos. 5.25 inches for Optical Media Drives and 2 Nos. 3.5 inches for Hard Disk Drives)	
10	Ports	6 USB Ports (with at least 2 in front), 1 Serial, audio ports for microphone and headphone in front.	
11	Cabinet	Mini Tower	
12	DVD Drive	8X or better DVD R/W	
13	Networking Facility	10/100/1000 on board integrated Network Port with remote booting facility remote system installation, remote wake up	
14	Operating System	Windows 7 Professional/ RHEL/ SUSE /OEL5 Linux preloaded, as specified, with media and documentation and Certificate of Authenticity	
15	OS Certifications	Windows 7 OS and Linux Certification	
16	Power Management	Screen Blanking, Hard Disk and System Idle Mode in Power On, Set up Password, power Supply SMPS Surge protected	
17	Preloaded Software	Norton or McAfee or eTrust or e-scan or Fore front or Trend Micro or PC Tool or Quick heal Antivirus (Latest Version) with 60 days License. (Included in case of Windows 7 only).	

Note : Due to development in the technology the above configuration may be changed in future.

Specifications of Laptop / Notebook

Sr. No.	Description	Specifications	Remark
1	CPU	Intel Core 2 Duo Processor/ E/15	
2	Screen	15.6 inch 720p WXGA TRUE LIFE/ 15.6 LED	
3	Memory	2 GB DDR2 RAM	
4	Operating System	WindowsXP/Vista Home Basic/	
5	Hard Disk	250 GB/ 500 GB SATA	
6	Optical Drive	8X DVD RW	
7	Wifi	Yes	
8	Bluetooth	Yes	
9	Modem	None	
10	USB	3 USB 2.0 port	
11	Audio	Integrated Sound Card - Intel High Definition Audio 2.0	
12	Graphics	Intel Media 4500MHD	
13	Battery	Lithium-Ion (Li-Ion) battery	
14	Warranty	1 Limited warranty	
15	Camera	Integrated 1.3 mega pixel web cam	
16	Others	Mcafee Anti Virus, Mini-card card slot, 1 Express Card 34 mm Slot, 7 in 1 Card Reader	

Note : Due to development in the technology the above configuration may be changed in future.

Specifications of Printers

Sr. No.	Description	Specifications	Remarks
1	Dot Matrix Printer	Pin: 24, Column: 136, CPS at 10 cpi: 300, Port: One Parallel English and Devnagari script in-built	
2	Inkjet Printer	Resolution in dpi: 4800 x 1200, Paper size:A4,Print Speed in PPM (A4 Size): 20 BW and 14 C, Port 1 USB, Duplexing: NA	

Note : Due to development in the technology the above configuration may be changed in future.

Specification of Scanner

Sr. No.	Description	Specifications	Remarks
1	Document Scanner A4/ Legal size	Resolution in dpi: 600, Speed in PPM: 15, ADF Capacity: 50, Flat Bed Size:A4, Document Size: NA, Networking: Yes	

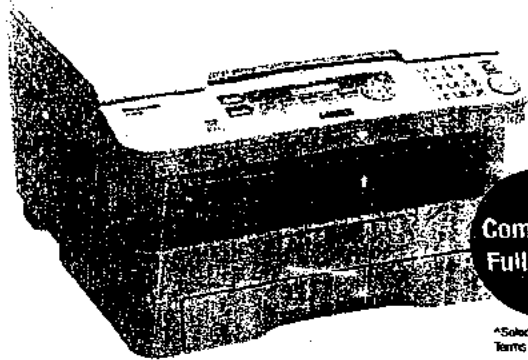
Note : Due to development in the technology the above configuration may be changed in future.

AUTOMATIC PLAIN PAPER COPIER.

Sr. No.	Specification	Requirement
1	Type of Machine	Table Top/floor, Stationary platen.
2	Process	Dual Component
3	Type of original	Sheet, Book, Ledger
4		Medium Duty size A3
		Heavy Duty size A3
5	Reproduction (Minimum requirement)	Copies/ Minute Minimum for A4 size
	(a) Medium Duty	15 to 90 CPM
	(b) Heavy Duty	20 to 25 CPM
6	Paper feed and cassette capacity	200 Sheet and automatic paper feed photo copying capability on paper tracing transparency, gummed cassette sheet of 60-110 gsm.
7	Fusion System	Indirect Heat and Pressure
8	Photo Conductor	OPC
9	Warm up time	Less than 3 min.
10	Power Supply	230 Volt + 15% - 20%
11	Number of copies possible on continuous run	99
12	Life of the photo conductor	i) Guarantee Life ii) Expected Life
13	Exposure Control	Auto and Manual
14	Optical System	Moving and/or Stationary.
15	Self Diagnostic Display Arrangement on Operating Console	Suitable self diagnostic features to be provided for trouble shooting purpose in case of defect/operational errors.
16	Manual Bypass Arrangement	Shall be provided
17	Cumulative Counter	Non resettable cumulative counter facility
18	Ambient Temperature	10 to 40 And 30% to 80% RH

Provision of voltage stabilizer is mandatory. In case of power fluctuation if it is found that the install stabilizer is not sufficient to with stand fluctuation the Rate contract holder should supply extra suitable stabilizer free of cost.

18 ppm
15.5x
Colour



PRINT
COPY
COLOR SCAN

MB262CX

3-in-1: Print, Copy, Flatbed Colour Scan

- 18 ppm High-Speed Laser Printing
- 600 x 600 dpi Print Resolution
- 18-cpm Copy Speed
- N-in-1 Copy Feature (2-1, 4-1, 8-1)
- USB 2.0 High-Speed
- 32MB Memory

Comes with Full Toner

*Selected destinations only. Terms and conditions apply.

MB772CX

5-in-1: Print, Copy, Fax, PC Fax®, Flatbed Colour Scan

- 20 ppm High-Speed Laser Printing
- 600 x 600 dpi Print Resolution
- Automatic Document Feeder
- 18-cpm Copy Speed
- 33.6 kbps Super G3 Fax
- N-in-1 Copy Feature (2-1, 4-1, 8-1)
- USB 2.0 High-Speed
- 32MB Memory

18 ppm
15.5x
Colour
20
33.6x



PRINT
COPY
FAX
PC FAX
COLOR SCAN

Comes with Full Toner

*Selected destinations only. Terms and conditions apply.

Laser Fax

18 ppm
15.5x
15
14.4x



COPY
FAX

14 ppm
15.5x
20
14.4x



- 14.4 kbps High-Speed Fax Transmission
- 10 cpm Copy Speed
- Quality Laser Copying
- Caller ID Ready*
- 150-Page Document Memory^{1,2}

FL613SN

- 14.4 kbps High-Speed Fax Transmission
- 14 ppm High-Speed Laser Copying
- 250-Sheet Paper Capacity
- Multiple Copies (Up to 99 from the O)
- 170-Page Document Memory^{1,2}
- Caller ID Ready*

*Available when connected to PC running Microsoft® Windows®. Multi-function software is included.
¹Based on ITU-T No. 1 test sheet.
²Max. 179 pages for out-of-order reception; Max. 120 pages for memory transmission.
³Max. 40 pages for out-of-order reception; Max. 150 pages for memory transmission.
 *Requires subscription to long distance telephone service. This feature is only available for landline connections.

SCHEDULE - B

RC SPECIFICATION:

1. Country of Origin :- Japan & Phillipines.
2. Monetary Limit :- Without Limit
3. Order to be placed at a billing address : International Electronics & Communication Systems Pvt. Ltd. IECS House, A-2, C-Block, Community Centre, Naraina Vihar, New Delhi-110028
4. Locally Procured Trolley will be supplied alongwith item nos. 19, 21, 22, 23 & 24 of the RC.
5. NOTE : DADF is a Standard Part of Accessory for Duplex Category of Digital Copier Machine & Digital Multifunctional Copier Machine

SPECIAL CONDITIONS OF CONTRACT

1. PAYMENT TERMS: 95% payment will be made against proof of inspection & provisional receipt certificate issued by the consignee for the receipt of the material. The balance 5% of the contract price of the stores will be paid on installation, commissioning and final acceptance of stores by the consignee and also submission of bank guarantee for the balance 5% of contract value valid for 2 months beyond the guarantee/warranty period. Indemnifying the purchaser against all losses incurred during the guarantee/warranty period stipulated in the contract.
2. Machines will be delivered free at consignee's end, including freight, forwarding and under DGS&D's standard transit insurance clause, that the purchaser will not pay separately for the insurance charges and it will be the contractor's responsibility for the safe arrival of goods in full and good condition.
3. Installation & demonstration of the machines will be carried out free of cost at consignee's place.
4. The tenderers will have to provide free training for at least two operators at the place of installation free of cost.
5. The tenderers shall guarantee availability of service and spare parts for their machines for a period of 7 years from the date of supply.
6. Machines shall conform to Guarantee/Warranty clause for a period of 12 months from the date of installation/demonstration, as per Clause 18 of form No. DGS&D-1001.
7. Warranty covers free service and free spare parts excluding the consumables.
8. The drum of the machine shall not be covered in the warranty

[Signature]

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period, as this is a consumable items.

9. Other terms and conditions are as per Form DGS&D-1001.

10. No assistance for import of finished product or raw material will be provided.

11. Verification of all features as per the rate contract at the time of inspection.

12. For imported machines offered for inspection, the documentation required at the time of inspection of bulk supplies for each and every lot are as under:-

- a) Bill of Lading;
- b) Packing list;
- c) Certificate of origin;
- d) Serial numbers along with model numbers pertaining / corresponding to imports covered by above documents;
- e) A certificate from the manufacturer that the machines with particular model Nos. and Serial Nos. were exported by them to Indian supplier and that the same were tested in their factory and found to be satisfactory as per the standard specification of the product.
- f) Guarantee/Warranty Certificate for the machine by R/C holding firms

13. Octroi Duty and Local Taxes:

Normally materials to be supplied to Government Department against Govt. Contracts are exempted from levy of town duty, Octroi duty, terminal tax and other levies of local bodies. The local Town/Municipal Body regulations at times, however, provide for such exemption only on production of such exemption certificate from any authorized officer. Contractors should ensure that stores ordered against contracts placed by this office are exempted from levy of Town duty/Octroi duty, Terminal tax or other local taxes and duties. Wherever, required, they should obtain the exemption certificate from the purchase officer or indenter concerned, to avoid payment of such local taxes or duties. Octroi, entry tax etc on the buyers account in the absence of relevant exemption certificate. Road permit, Waybill to be provided by DDO along with the order.

All other terms and conditions as per standard conditions in Form DGS&D-1001.

14. Supply of Road Permits/ Way bill by the indenter/consignees:

In all such cases where the requirement of Road Permit/Way Bills for entry of goods into a particular State is mandatory, the following provisions shall be strictly followed:-

- (a) The supplier shall request the indenter/consignee for providing Road permit/ Waybill within 10 days of the receipt of the supply order. The supplier shall furnish all the necessary information and documents in this regard to Indenter/consignee.

J. S. Rao

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On receipt of the above request from the supplier, the indenter/consignee concerned shall arrange to provide the Road permit/Way Bill in the prescribed form to the supplier within a maximum period of two weeks so that the same reaches the supplier before the dispatch of the stores. However, in cases where the Road permit/Way Bill is issued on proof of actual invoice of the material, the consignee shall arrange to provide the Road permit/Way Bill from appropriate authorities within a maximum period of 5 days from the receipt of invoice.

(c) The supplier shall not be held responsible for any delay in supply due to non-supply/delayed supply of Road permit/Way bill by the indenter/consignee.

(d) All cases of abnormal delay in providing requisite details/documents by the supplier or issue of Road permit/Way bill by indenter/consignee, the same shall be reported by them to DGS&D.

The details of the Road permits presently applicable in different States are as under:-

Sl. No.	States	Road Permit
1	Andhra Pradesh:	- Not Applicable
2	Arunachal Pradesh:	Form -03
3	Assam:	Form - 61/62
4	Bihar:	Form 28-B
5	Chhattisgarh:	Form 59A
6	Goa:	-Not Applicable
7	Gujarat:	Form 403
8	Haryana:	Form 38 if value is Rs. 25,000 or more.
9	Himachal Pradesh:	- Form -26
10	Jammu & Kashmir:	- Form-65+
11	Jharkhand:	Form- JVAT 504 G
12	Karnataka:	- Not Applicable
13	Kerala:	- Not Applicable
14	Madhya Pradesh:	Form 88/89
15	Maharashtra:	-Not Applicable
16	Manipur:	Form 35 / 37
17	Meghalaya:	Form 14
18	Mizoram:	Form 33
19	Nagaland :	Form 16A
20	Orissa:	Form 28 / 32
21	Punjab:	-Not Applicable
22	Rajasthan:	Form 18A
23	Sikkim:	Form 25A
24	Tamil Nadu:	-Not Applicable
25	Tripura:	Form 18A / 18 B
26	Uttar Pradesh:	Form 31/32
27	Uttaranchal:	Form 16/17
28	West Bengal:	Form 50

15. Pre-Inspected Lot: In order to meet the urgent requirement of indenter you may maintain pre-inspected stock of Digital Copier for ready dispatch against individual supply orders. In case, however, you fail to dispatch the stores within 60 days of inspection, the same shall have to be pre-inspected before dispatch.

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For supplies made from the pre-inspected stocks inspection, Note
are to be obtained from the Inspecting Officer in each case.
Dispatches/deliveries of pre-inspected stocks which are duly
accepted need not however, await release of I/Notes are
actually released.

SCHEDULE -D

SPECIAL INSTRUCTIONS FOR TO R/C HOLDERS

1. Rate Contract holders are advised that before entertaining the supply order(s), they should ensure the availability of following certificates from DDos.
 2. They are Central Government Department drawing funds from Consolidated Fund of India.
 3. The expenditure involved for the purchase has received the sanction of the competent financial authority.
 4. The funds are available under the proper head in the sanctioned budget allotment for the year.
 5. They have been fully authorized by the Department to sign the supply order and incur the liability in respect of the stores being ordered.
 6. The rate contract holders should assist the consignee(s) in the installation and operation of the machine, including recommendations for accessories and voltage stabilizer.
 7. Data Security Kit is available as optional accessory.
- (SURENDRA SINGH)
Assistant Director of Supplies
For and on behalf of the purchaser named in the form DGS&D-1601.

ANNEXURE

Common Requirements for all the items.

1. The machines with above 20 cpm (copies per minute) for copying as well as printing shall have electronic sorting feature.
2. The machines shall be copier engine based having separate drum and toner. The drum shall not be required to be changed with every toner replacement. All in one cartridge machines shall not qualify for the subject tender.
3. Suppliers shall possess Acceptance test facilities at the place of inspection as under:
 - (a) Verification of all features and functional performance of the machine.
 - (b) Verification of its suitability for electrical parameters of voltage and power consumption.
 - (c) High Voltage test at 1000 V.
 - (d) Insulation resistance test.
4. Type tests shall consist of verification of all the features & functional requirements including environmental tests and shall be from any government laboratory. The environmental tests sequence will be as under:
 - (a) Dry Heat : For 16 hrs. at a temp. of 55 degree C in accordance with IS:9000/part-3/section-5/1977 (reaffirmed in 1997).
 - (b) Cold Test : For 4 hrs. at a temp. of 0 degree C in accordance with IS:9000/part-2/section-4/1977 (reaffirmed in 1997).
 - (c) Damp Heat Test : For 2 Cycles of 24 h each at a temp. of 40 degree C & 95% RH in accordance with IS:9000/part-5/section-1/1991 (reaffirmed in 1997).After each environmental test and a recovery period of two hours, the machine shall be checked for complete functional parameters, which should not show any deterioration in comparison to the values obtained before the environmental tests.

The copier can also be accepted on the basis of UL or CE certificate along with a certificate from OEM confirming compliance of the quoted models to the environmental conditions as per the clause (4) and functional parameters as per the clause (3) above.

The OEM certificate should be from the manufacturer on their letter-head duly stamped by them and counter-signed by the Indian supplier.

Basic Digital Copier

Digital Laser Copier, Resolution 600 X 600 dpi (minimum), copier engine based, with specified zoom ratio increment of 1% suitable for operation on single phase AC 230 +/-10% Volts, 50 Hz, preset enlargement, and reduction steps, 250 sheet tray capable of multiple copying up to 99 copies.

Digital Copier with Printer

Digital Laser Copier with printer, copying and printing resolution 600 X

Jeejee

25-112
28-113
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6.1" (PQ) LR

000

dpi (minimum), copier engine based, with specified zoom ratio increment of 1% suitable for operation on single phase AC 230 +/-10% Volts, 50 Hz, preset enlargement and reduction steps, 250 sheet tray capable of multiple copying up to 99 copies.

Digital Multifunctional Copier Machines

Digital Laser Multifunctional Copier machines with duplex copying and printing, scanner and networking duly trolley mounted, copying and printing resolution 600 x 600 dpi (minimum), copier engine based, with specified zoom ratio increment of 1% suitable for operation on single phase AC 230 +/-10% Volts, 50 Hz, pre set enlargement and reduction steps, 250 sheet tray capable of multiple copying up to 99 copies.

And-on items for Digital Copier

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