We can achieve excellent performance* from a Silent DG set, if proper care is taken during its *installation.* (The following suggestions shall help you to achieve *optimum performance from the D.G. Set.)

For Assistance

Please contact our customer care at C-266-267, Mayapuri Industrial Area, Phase-II, New Delhi-110 064

Mobile No. 9871590738, 9871590740
Phone No. 011-28114072 (D), 28111510, 28113231, Fax No. 28113149
e-mail**:** jaksonco@jakpower.com, jakson.service@jakpower.com

In case you are not satisfied, kindly register your complaint to
Jakson care No. - 8800447864

General Note:

1. Please always sign the report made by our Service Engineer.
2. Warranty is applicable for two years for engine & alternator only subject to use of Kirloskar K-Oil Premium, Kirloskar genuine filters, K cool super plus and services sourced through KOEL authorized Service Dealer.

☞ **Revalidation :-** If Generator set kept without commissioning (not in operation after delivery) for 6 months or more without preservation then Engine revalidation must be carried out through Authroized Kirloskar Dealer and Customer has to bear revalidation cost. Disobedience of above instruction may lead to problem in entertaining claim.

INDEX

SELECTION OF SITE

- Proper space should be there for placement and opening of doors of the Silent DG set.
- There should be atleast 1.5 meter free space around the DG set for proper operation and maintenance.
- There should be cross ventilation of air to ensure proper cooling of DG set. Exhaust gases and hot air discharge should not re-circulate inside the acoustic enclosure (canopy).
- If Genset is to be installed in the room, please ensure proper cross ventilation and surrounding space.
- There should be no restriction for fresh air suction and hot air discharge. If 2 nos. DG sets are installed at the site, ensure that hot air outlet of the one DG set does not become the fresh air intake of the 2nd DG set.
- If Genset is to be installed in the basement, please ensure ventilation with respect to Air requirement and clear space for every maintenance.
- Distance between two SDG set should be minimum 1.5 meters.
- A low height shelter for the Silent DG Set should be avoided. It should not obstruct the hot air outlet, shelter height minimum 1.5 meter or equal to height of genset
- It is preferable to install the DG set in an open area. No shade (roof) is required over it. However, if the AMF Panel is outside the Acoustic Enclosure, then a shelter is recommended for the AMF Panel.
- For Roof Top Installation, ensure that the civil structure is capable to bear the static and dynamic load of DG set. The load of the Silent DG set should be borne by Columns and Beams of the building.
- Proper space should be there for Earthing.
- If there are no space constraints, the DG set should be placed near the distribution panel.
- The DG set should be located away from polluted surroundings such as corrosive fumes, cement dust, fibres, cotton and toxic chemicals to avoid overheating of the D.G. Set.
- There should be sufficient space around the Genset to avoid resonance and echo effect which contributes to abnormal sound from Genset.
- The space should be open without any obstacles.

FOUNDATION DETAILS AND GUIDELINES

A. Ground base Foundation (RCC/PCC)

- The foundation should be water leveled and at least 300mm above the ground level to maintain cleanliness and avoid flooding.
- The length and width of the foundation should be at least 600mm to 800 mm more than that of the DG set size i.e. 300mm on each side. Check the foundation level diagonally as well as across the length and width.
- Please refer to the foundation drawing attached herewith (page-3).
- A rigid foundation ensures the least vibration. Sand Filling should be there around the foundation. 18mm rubber matting must be used over the foundation to minimize the vibration effect and noise leakage.
- Ensure that the foundation to support 1.5times of the total wet weight of the single generator and 2 times of the total weight for the multiple generators.
- Please refer to the dimension of DG set for deciding the foundation length, width and depth.

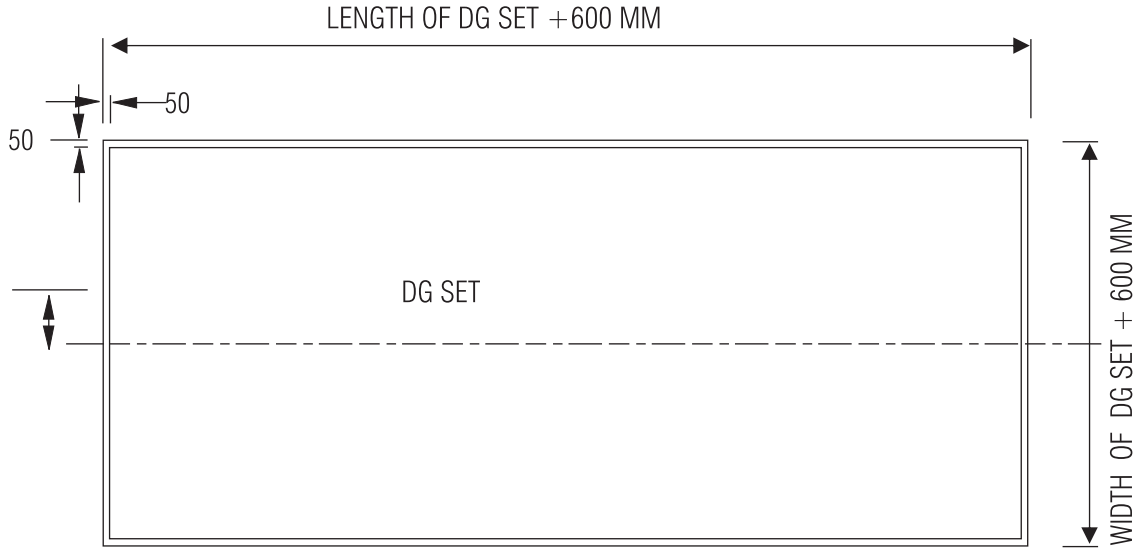
Note: Please ensure that the foundation should not be made over any basement, water tank or Sewer Line.

B. Roof top Installation

- A rooftop installation requires proper planning and the structural design considerations for dynamic loading.
- The weight of Silent DG set should be on Column and Beam through proper foundation.
- The RCC foundation should be on the Beam or supported on two Beams.
- ISMC Channel or MS "I" Section may also be used to cater the load of the DG set with the canopy. Load of ISMC Channel or MS "I" Section should be on the column of the building.
- M.S. Sheet is to be provided at the bottom of the base frame of the Silent DG set for roof top installation.

NOT TO SCALE

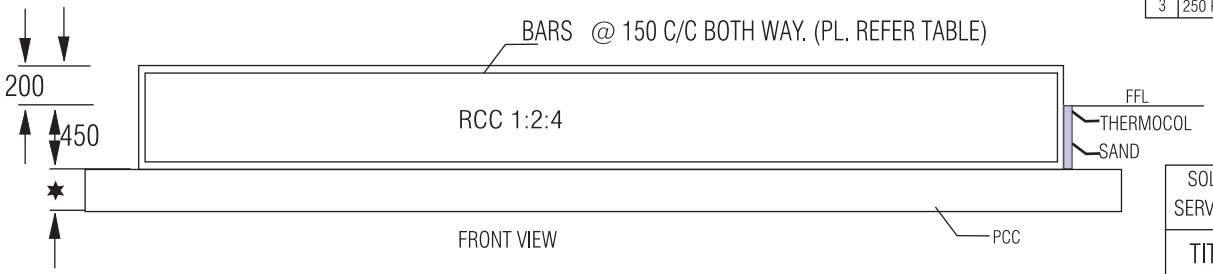
IF IN DOUBT ASK



TOP VIEW

TABLE FOR BAR' S SIZE

S.NO	RATING OF SLENT DG SET	SIZE OF BAR
1	UP TO 82.5 KVA	10MM DIA
2	100 KVA TO 200 KVA	12MM DIA
3	250 KVA TO 750KVA	16MM DIA



FRONT VIEW

✱DIMENSION MARKED AS (✱) TO BE DECIDED BY STRUCTURAL CONSULTANT/ CLIENT.

*THIS IS ONLY A REFERENCE DRAWING. KINDLY CONSULT YOUR CIVIL ENGR / CONSULTANT FOR MAKING FOUNDATION

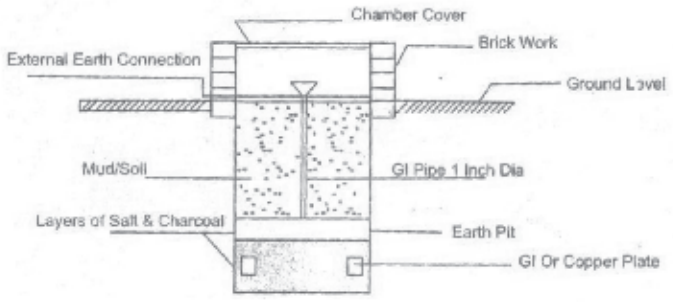
SOLD& SERVICED	JAKSON & CO. C-266,267,IND, AREA,PHASE-2,MAYAPURI, -NEW DELHI - 64		
TITLE	FOUNDATION DRAWING OF SOUND PROOF GEN SET		
PART NAME	FOUNDATION DRAWING		
DRAWN BY		DRG. NO.	RF-7-06
CHECKED BY		DATE	7/02/06
APPROVED BY		KIRLOSKAR ENGINE	

EARTHING SYSTEM

- An Earthing system is required for the protection of equipment and human being, as per Indian electricity Rules 1956.
- Separate earth should be used for Genset body and neutral earthing.
- 2 Nos. earthing pits are required for 1 phase DG set and 3 phase upto 30 kVA 1 each for neutral & body.
- 3 Nos. earthing pits are required for 40-125 kVA DG set 1 for neutral & 2 for body.
- 4 Nos. earthing pits are required for 160 kVA & above DG set, 2 each for neutral & body.
- The min. distance between 2 earthing pits should be 2.0 meters.
- An earth pit cover should be provided.
- A watering pipe of 25mm with a funnel should be provided for each pit, wherever depth of the earthing pit is not at water level.
- Earthing system should be checked with megger and resistance between earth pits and terminal should be less then 1Ω B/W 2 earth pits
- The earthing plate/pipe and strip size should be above 100 mega Ω when Genset is not connected

SDG Set rating	Recommended Earth Strip/Cable
5-82.5 KVA	8SWG-Copper
100-250KVA	25X3mm Copper/25x6mm GI
320-750KVA	50X6mm Copper/50x6mm GI 2 runs

TYPICAL EARTH PIT / STATION ARRANGEMENT



Exhaust Piping

The exhaust system must be designed to keep the resistance to hot gases (back pressure) as low as possible and load of the extended exhaust pipe / silencer should not be on the engine manifold

The following may please be noted.

1. There should not be any load or stress on the expansion bellow.
2. There should be proper support for the exhaust pipe.
3. Exhaust Pipes should be extended through proper flanges only.
4. Short bend should be avoided.
5. Always use proper size MS pipe (G.I. Pipe and bend should not be used in exhaust piping)
6. At the time of Genset Installation , Please ensure proper alignment of exhaust silencer with respect to expansion bellow
   Exhaust pipe load should not come on Expansion bellow and it should not touch the roof body.

As per statutory regulations, exhaust pipe has to be extended above the surrounding stack as below.

$H = h + 0.2 \times \sqrt{kva}$

Where H = Minimum height of exhaust stack, h= height of building

Exhaust Pipe Details

Engine Model (Air Cooled)	Minimum exhaust pipe OD (mm)
EA10 G1 /EA16 G1	50
HA294 G1/HA394TCI G1/HA394TCI G2/HA494TCI G1	63
HA694TCI G1	76

Engine Model (Water Cooled)	Minimum exhaust pipe OD (mm)
2R1040 G1	63
3R1040T G1/3R1040TA G1	76
4R810TA G1/4R1040TA G1	75
4K1080TA G2 /6R1080TA G1/6K1080TA G2	101
6SL-Series	138
DV-Series	150

Note-

1. If the extension of exhaust pipe is more than 5 meters above Genset, increase pipe diameter by 13mm for every 3 meters.
2. If no.of bends are more than 4, increase the diameter of exhaust pipe and bend by 13mm for addition of each bend.
3. Joining of Exhaust pipe for the both bank is not recommended. In case of necessity common pipe diameter should be at least 10% higher and refer proper procedure (Use of NRV valve and angle between chimni and pipe should be maintained) before joining two exhaust pipe.
4. Both the Exhaust pipe should not be connected opposite to each other. Angle between pipe should be 30^{o} to 45^{o}

FUEL PIPING

- A supply and return fuel pipe is required in each DG set .
- SDGs upto 750 KVA are provided with fuel tanks inside the acoustic enclosure.
- Outside fuel tank will be provided as per requirement.
- For fuel tank inside the acoustic enclosure, fuel piping is done by the manufacturer/supplier.
- However, for Fuel Tank outside the enclosure, fuel piping is to be done by the customer.
- Size of the fuel piping should be 12mm upto 250 KVA DG set.
- B/C Class M.S. pipe (19 mm - 25mm I.D.) is recommended For fuel piping above 250 KVA DG sets.
- MS pipe should be used with proper welded joints.
- Stop valve and flange should be used in supply line to engine near fuel tank (for Fuel Tank mounted outside).

PRECAUTIONS TO BE TAKEN FOR FUEL PIPING AND FUEL SYSTEM.

- Never use GI pipes in fuel piping of DG set.
- Joints should be welded and never threaded.
- Pipe should be above ground level with proper MS support.
- All joints should be tested for any seepage or leakage.

CABLING

- It has been our experience that most electrical failures are caused by overheating due to loose thimbling or undersize cables.
- Please use cable of correct size to carry full load current and thimble of correct size for cable termination.
- At no time, loose wires should be tightened on to terminal/busbar with bolts.
- Crimping should be done with proper crimping tool.
- Ensure tight crimping/terminations to avoid overheating and burning of the cable and terminals.
- Ensure proper bending radius is given to the cable to avoid excessive tension on cable termination.
- Ensure that the weight of cables does not rest on alternator terminations. Proper support to be provided from the ground separately through cable tray.

For 3 Phase

KVA	10	15	20/25	30	35/40	45	50/62.5/70	82.5	100	125
Al. Cable Size 3.5 core sq.mm	10	10	10	16	25	35	50	95	120	150
Copper cable size 3.5 core sq.mm.	4	6	10	10	16	25	35	50	50	70
KVA	140	160	180/200	250	320	380/400	500	600/625	750	1010
Al. Cable Sizex 3.5 core sq.mm	185	240 or 2x95	300 or 2x120	400 or 2x185 or 3x95	2x300 or 3x150 or 4x95	4x150 or 3x240 or 5x95	3x300 or 4x185 or 5x120	4x300 or 5x185 or 6x120	4x400 or 5x240 or 6x185	6x300 or 7x225
Copper cable size 3.5 core/	70	70	120	150	240	300	2X185	400	-	-

For 1 Phase

KVA	10	15	20	25/30	35/40	50	62.5	82.5
Al. Cable 2 core/sq.mm	10	25	35	50	70	120 or 2x70	120 or 2x70	400 or 2x185 or 3x95
Copper Cable Size 2 core / sq.mm	16	25	35	50	95	95	120 or 70x2	150

Note:- a. Correct size cable glands should always be used for holding the cable.
b. Control wiring should always be done with 2.5 sq.mm copper cable.
c. From 320 KVA to 1010 KVA bus bar terminal box will be provided by customer

BATTERY CHARGING PROCEDURE

a. Battery charging procedure

- Specific gravity of acid inside the battery should be 1.23 to 1.28 kg/ltr.

Note:

- If dry battery is supplied along with the DG set then initial charging of the battery is required.
- If battery is kept ideal for 3 month, then battery should be charged.

b. Method to use battery

- If DG set is not in use for a long time then ensure that at positive terminal battery lead is not connected. It should be connected at the time of the commissioning of the DG set.
- Charged battery may be used for commissioning of DG set within 15-20 days, else re-charging of charged battery is required.
- Always connect the battery with the proper battery charger. The battery should be connected to the battery charger, which is connected with 230V AC supply.
- The Battery charger is provided with an AMF Panel (Auto Mains Failure Panel) under the standard scope of supply. 230V AC supply is essential for battery charger operation.

Note: Battery charger is not supplied with a std. manual Panel. So, it is suggested that the DG set must run once a day for 15-20 minutes so that battery get charged by engine dynamo/charging alternator. Battery should not be kept ideal for 3 months.

c. Precaution to be taken during handling of battery

- Do not charge the battery at a wet a place.
- Flame, Candle and matchbox should not be used near charged battery.
- Use hand gloves while handling the charged battery.
- Electrolyte level should be medium.
- Always switch off the charger first before disconnecting the battery from the DG set.
- Never put tools etc. on the battery.
- Remove battery terminal (Positive and Negative) during any welding work on genset.

SUMP CAPACITY (LITRES)

AIR COOLED

Engine Model	EA10 G1	EA16 G1	HA294 G1	HA394TCI G1/G2	HA494 TCI G1	HA694TCI G1	DV12ETA G2
Lts.	3.5	6.5	5	8	8.3	11	130 Ltrs

WATER COOLED

Engine Model	2R1040 G1	3R1040T G1	3R1040TA G1	4R810TA G1	4R1040TA G1
Lts.	5.5	8	8	10	10

Engine Model	4K1080TA G2	6R1080TA G1	6K1080TA G2	6SL1500TA G2	6SL1500TA G3
Lts.	18	12	18	27	27

Engine Model	DV8TA G1	DV8TA G2	DV8TA G3	DV10TA G1	DV12TA G1	DV12TA G2	DV12ETA G2	DV16ETA G2
Lts.	41	41	41	45	50	50	50	130

Note- Recommended K-Oil Premium / Filters Change Interval

- First Service and Oil change within 50 hours or 30days from date of commissioning whichever is earlier(G1 Check).
- G2 Check within 500 hours or 7 months from date of commissioning whichever is earlier
- G3 Check within 1000 hours or 13 months from date of commissioning whichever is earlier
- G4 Check within 1500 hours or 19 months from date of commissioning whichever is earlier
- After first service Oil change period is 500 hours or 12 months whichever is earlier.

CHECK UP BEFORE STARTING THE DG SET

S. No.	Description	Status
1.	Air cleaner mounting	Fitted/Not fitted
2.	Air cleaner cleanliness	Clean/dirty/replaced (Dry or oil type)
3.	Air cleaner clamps Hoses	Cracked/normal/ not clamped / tightened
4.	Grade & specs of oil used	15W40 (K-Oil Premium)as per koel manufacture's recommendation
5.	Lub oil level & positioning of oil filter	OK/Not OK
6.	Check lub oil safety	OK/Not OK
7.	All Nuts & Bolts	Proper Tightened
8.	Battery condition	Charged/Discharged
9.	Battery Terminal/Leans	Proper/damaged/ replaced
10.	Electrolyte level	High/Medium/Low
11.	Fuel Filter & water separator	Proper/to be replaced
12.	V Belt for charging alternator	Proper Tightened/not Proper
13.	V Belt tension	Proper/adjusted
14.	Coolant level in the Radiator	High|Medium|Low|filled
15.	Check coolant temp. safety	OK/not OK
16.	Wiring (Engine/Panel)	OK/not OK
17.	Check all wires tightening	OK/not OK
18.	Alternator back cover	Fitted/removed
19.	Cable termination	Proper/loose/Tightened
20.	Canopy door alignment	proper/adjusted/not proper
21.	Canopy door hinge Lock operation	OK/not OK/Adjusted

Routine Maintenance of SDG Set.

Every 10th Hour/ Daily	In Running Hours							Job
	1st 50	250	500	750	1000	2500	5000	
✸								Engine oil level.
✸								Coolant level in radiator and compensatory tank.
✸								Restriction indicator of dry type air cleaner / radiator.
✸								Rubber hose & clips of dry type air cleaner / radiator.
	●		●		●	●	●	Engine oil (Every 500 Hrs.)
	●		●		●	●	●	Lube oil filter cartridge (Every 500 Hrs.)
	✸							Battery and lead connections (Every 50 Hrs.).
		✸	✸	✸	✸			'V' Belt condition and tension (adjust / replace if required).
		▲	▲	▲	▲			Radiator fins (depends on site condition) externally.
							▲	Radiator tubes internally.
			●	●	●	●	●	Replace fuel filter cartridge after every 500 Hrs.
						✸	✸	Injector.
		▲	▲	▲	▲	▲	▲	Fuel strainer (Button filter).
							✸	Thermostat element (change if necessary).
						✸	✸	Valve clearance (adjust if necessary).
						✸	✸	Starter / Alternator.
						✸	✸	Fasteners
							✸	Exhaust Silencer.

✸ Check / Adjust ● Change ▲ Clean

PRE-COMMISSIONING CHECK

Whenever you want to call a Service Engineer for commissioning, kindly ensure that --

- Installation work has been completed (i.e. foundation, earthing, exhaust pipe job has been completed with proper supports, if extended beyond the canopy)
- Fuel pipe line job is completed, if Fuel Tank is outside the canopy.
- If DG set installed inside a room, a duct to be provide for fresh air & hot air exit should be 1.5 times higher then the canopy inlet & outlet.
- Power cable laying, fitting and connection jobs are completed with proper glanding.
- If panel is out side canopy, Power Cable Control cable laying, fitting & connection jobs have been completed.
- Most important - Battery is charged.
- If the DG set is with AMF Panel, then 230 V AC mains or 415 V AC mains (R,Y,B,N) supply is provided at the AMF Panel to check its operation and for Battery Charger.
- Diesel is available in the Diesel Tank.
- Engine is duly filled with Lube Oil upto "H" mark
- Coolant level is up to 'H' mark
- Load is available.

Note: It is mandatory to get your Diesel Generating Sets commissioned on load and kindly do sign the commissioning report made by our Service Engineer.

ROUTINE CHECK POINTS

- Check Fuel Level
- Drain water from fuel Tank (Especially during winter Season.)
- Check Coolant level in the Radiator
- Check for any leakage
- Check for any loose connections
- Check Battery condition
- Check Lube oil level and quality (lube oil should not be very thick with visible carbon and metal particles).
- Check electrolyte level in battery
- Check electrical wires for any loose connection if found tighten it

DO`s

- Check fuel /coolant/lube oil level
- Check for any leakage
- Check electrolyte level in Battery, It should be between 1.23-1.28 kg/ltr
- Check Fan belt tension
- Check battery charger
- Drain the water from fuel tank,weekly during winters
- Check all nuts, Bolts, Engine/Alternator foundation bolts tightness at the time of commissioning then monthly
- Check for any loose connections at the time of commissioning then monthly
- Use K-cool super plus, Lube K-oil Premium and spares as per KOEL specification and purchase from authorized KOEL service dealer
- Refer Engine maintenance manual for routine and daily maintenance check.
- Study 'user manual' in detail before usage.
- Keep good ventilation which is essential to keep the air,cool and clean.
- Use appropriate tools and equipments which are required to carry ot any service.
- Ensure all nuts, screw, pipe, connections and covers are properly tightened
- Ensure that sufficient diesel fuel ,oil in the tank & lube oil in the engine(for specification, grade of oil & coolant refer to O & M)
- Check the battery codition and connections
- Check earthing of the generator set
- Apply load on the genset gradually
- Carry out maintenance repairs & overhauling of the genset as per recommended schedules in the user manual
- Call on the authorised service dealer for servicing & maintenance work.
- Please refer maintenace maual before doing any maintenance work.
- Cable entry hole, if not in use, should be properly closed.

DON`Ts

- Do not Repair /Service any part when set is running.
- Never operate the genset with any parts or ducting removed.
- If any fault is traced, Do not attempt to start the genset unless fault is rectified.
- Do not use start push button continously for more than 5 seconds.
- Do not check lub oil, coolant level while DG set is running.
- Do not change or modify any wiring, it may cause void of warranty.
- Do not turn off the fuel supply for stopping the genset unless any emergency.
- Do not start genset on load.
- Do not allow the genset to run idle for Long periods on no load.
- Do not leave behind tools,waste cloth,loose wires etc, after repair or maintenance work is completed near the genset.
- If the DG set is with AMF panel do not tuch live wire as Main supply is available in circuit from AMF panel even if DG set is OFF.
- Do not get the DG set repaired and serviced by any unauthorized person. It may cause void of warranty.
- Do not add acid of any strength to the Battery, for topping up use distilled water only.
- Do not attempt to open the locked doors it can cause failure of door lock.

TROUBLE SHOOTING - ENGINE

Important Note - Trouble shooting points are given just for reference. Please do contact KOEL service dealer for any check or repair.

Description	Causes	Remedies
Engine does not start	No fuel in Tank	Fill Fuel in tank
	Air in Fuel line	Vent air from fuel line
	Choked fuel line	Clean and clear fuel line
	Dirty /clogged air cleaner	Check Vaccum indicator, if red ribbon is visible then Clean air cleaner(refer manual for cleaning)
	Dirty or choked fuel filter	Contact to KOEL Service Dealer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Faulty starter	Contact to KOEL Service Dealer
	Engine used after a long time	Check and Charge battery or Contact to KOEL Service dealer
	Battery discharged	Charge the Battery
	Loose or dislodged wiring	Check wiring,it should be as per drawing andTightened
	Engine needs overhauling	Contact to KOEL Service Dealer
Engine fails to start	Engine used after a long time	Contact to KOEL Service Dealer
	Engine seized	Contact to KOEL Service Dealer
	Engine needs overhauling	Contact to KOEL Service Dealer
	Faulty starter	Contact to KOEL Service Dealer
	Battery run down/under rating	Contact to manufacturer or Service dealer
	Loose or dislodged wiring	Check wiring,it should be as per drawing andTightened
Engine start but stops after some time	Dirty /clogged air cleaner	Check Vaccum indicator, if red ribbon is visible then Clean air cleaner(refer manual for cleaning)
	No fuel or Low fuel in tank	Fill Fuel in tank
	Poor quality of fuel	Change the fuel and use good quality fuel
	Air in Fuel line	Vent air from fuel line
	Choked fuel injector holes	Contact to KOEL Service Dealer
	Dirty or choked fuel filter	Contact to KOEL Service Dealer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Water mixed with fuel	Check the reason and sort out or Contact to manufacturer/ KOEL service dealer
	Engine seized	Contact to KOEL Service Dealer
	Engine needs overhauling	Contact to KOEL Service Dealer
Engine not taking load	Dust entry in air inlet system	Make necessary arrangement to stop dust entry without any modification in air inlet arrangement
	Dirty /clogged air cleaner	Check Vaccum indicator, if red ribbon is visible then Clean air cleaner(refer manual for cleaning)
	High exhaust back pressure	Check Exhaust pipe arrangement, it should be as per manufacturer recommendation,Contact to manufacturer
	Derating due to temp,altitide,humidity	Contact to manufacturer
	Poor quality of fuel	Change the fuel and use good quality fuel
	Choked fuel line	Clean and clear fuel line

Contd.

	Choked fuel injector holes	Contact to KOEL Service Dealer
	Dirty/Choked fuel filter	Contact to KOEL Service Dealer
	Fuel level setting wrong	Contact to KOEL Service Dealer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Water mixed with fuel	Check the reason and sort out or Contact to manufacturer/ KOEL service dealer
	Radiator fins choked	Clean the radiator fins
	Loose V-Belt	Contact to KOEL Service Dealer
	No coolant or level low in radiator	Top up with K Cool super plus
	Wrongly adjusted valve clearance	Contact to KOEL Service Dealer
	Blown cylinder head gasket	Contact to KOEL Service Dealer
	Valve leakage	Contact to KOEL Service Dealer
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Worn out cylinder liner & piston	Contact to KOEL Service Dealer
	In correct valve & fuel timing	Contact to KOEL Service Dealer
	Injector needs adjustment	Contact to KOEL Service Dealer
	Faulty governor setting	Contact to manufacturer or KOEL Service Dealer
	Engine needs overhauling	Contact to KOEL Service Dealer
Engine speed does not remain constant	Choked fuel line	Clean and clear fuel line
	Poor quality of fuel	Change the fuel and use good quality fuel
	Choked fuel injector holes	Contact to KOEL Service Dealer
	Damage or dribbling nozzle	Contact to KOEL Service Dealer
	Dirt / choked fuel filter	Contact to KOEL Service Dealer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Injector needs adjustment	Contact to KOEL Service Dealer
	Faulty governor setting	Contact to manufacturer or KOEL Service Dealer
	Load at the time of starting	Start generator at no load
Engin dos not reach governed speed	Choked fuel line	Clean and clear fuel line
	Dirt / choked fuel filter	Contact to KOEL Service Dealer
	Control lever setting wrong	Contact to KOEL Service Dealer
	Engine overloading	Ensure Load as per rating or manufacturer recommendation
Excessive smoke at no load or low load	Dirt/clogged air cleaner	Clean air cleaner
	Damage or dribbling nozzle	Contact to KOEL Service Dealer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Engine used after a long time	Contact to KOEL Service Dealer
	Wrongly adjusted valve clearance	Contact to KOEL Service Dealer
	Blown cylinder head gasket	Contact to KOEL Service Dealer
	Valve leakages	Contact to KOEL Service Dealer
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Worn out cylinder liner & piston	Contact to KOEL Service Dealer
	Incorrect bearing clearances	Contact to KOEL Service Dealer
	Damaged main & connecting rod bearings	Contact to KOEL Service Dealer
	Incorrect valve & fuel timing	Contact to KOEL Service Dealer
	Injector needs adjustment	Contact to KOEL Service Dealer
	Faulty governor setting	Contact to manufacturer or KOEL Service Dealer
	One or more cylinder not working	Contact to KOEL Service Dealer
	Engine needs overhauling	Contact to KOEL Service Dealer

Excessive smoke at full load	Dust entry in air inlet system	Make necessary arrangement to stop dust entry without any modification in air inlet arrangement
	Dirt/ clogged air cleaner	Clean air cleaner
	Derating due to temp,altitide,humidity	Contact to manufacturer
	Poor quality of fuel	Change the fuel and use good quality fuel
	Choked fuel injector holes	Contact to KOEL Service Dealer
	Damage or dribbling nozzle	Contact to KOEL Service Dealer
	Control lever setting wrong	Contact to KOEL Service Dealer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Engine overloading	Ensure Load as per rating or manufacturer recommendation
	Worngly adjusted valve clearances	Contact to KOEL Service Dealer
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Excessive end play in crankshaft	Contact to manufacturer or KOEL Service Dealer
	Worn out cylinder liner & piston	Contact to KOEL Service Dealer
	Worn out valves and valves guides	Contact to KOEL Service Dealer
	Incorrect valves & fuel timing	Contact to KOEL Service Dealer
	Injector needs adjustment	Contact to KOEL Service Dealer
	Faulty governor setting	Contact to manufacturer or KOEL Service Dealer
	Engine needs overhauling	Contact to KOEL Service Dealer
Engine overheat	Dust entry in air inlet system	Make necessary arrangement to stop dust entry without any modification in air inlet arrangement
	Fresh Air intek and Hot air discharge not proper	
	Gap in radiator and Partition. Hot air recirculation inside canopy	Ensure proper sealing of radiator and Partition.
	Dirt/ clogged air cleaner	Clean air cleaner
	High exhaust back pressure	manufacturer recommendation,Contact to manufacturer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Wrong grade of lube oil used	Change the lube oil as per KOEL specification
	Dirt/choked suction tube strainer	Clean the tube strainer
	Clogged oil passage	Check and clear oil passage, Contact to KEOL service dealer
	Radiator fins choked	Clean the radiator fins
	Loose V-Belt	Contact to KOEL Service Dealer
	Air leakages through radiator & shroud	Block air passage and ensure no air recirculation
	No coolant or level low in radiator	Top up with K Cool super plus
	Engine overloading	Ensure Load as per rating or manufacturer recommendation
	Wrongly adjusted valve clearance	Contact to KOEL Service Dealer
	Prolonged oil change period	Contact to KOEL Service Dealer
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Excessive end play in crankshaft	Contact to manufacturer or KOEL Service Dealer
	Engine seized	Contact to KOEL Service Dealer
Engine gives out blue smoke	Wrong grade of lube oil used	Change the lube oil as per KOEL specification
	Excessive oil in the sump	Check and rectify lube oil level upto High mark only
	Engine used after a long time	Contact to KOEL Service Dealer
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Worn out cylinder liner & piston	Contact to KOEL Service Dealer
	Worn out valves and valves guides	Contact to KOEL Service Dealer

Engine give white smoke	Water mixed with fuel	Check the reason and sort out or Contact to manufacturer/ KOEL service dealer
Excessive fuel consumption	Dust entry in air inlet system	Make necessary arrangement to stop dust entry without any modification in air inlet arrangement
	Dirt/ clogged air cleaner	Clean air cleaner
	High exhaust back pressure	manufacturer recommendation,Contact to manufacturer
	Poor quality of fuel	Change the fuel and use good quality fuel
	External/internal fuel leakage	Check for any leakage and rectify
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Engine overloading	Ensure Load as per rating or manufacturer recommendation
	Blown cylinder head gasket	Contact to KOEL Service Dealer
	Valve leakages	Contact to KOEL Service Dealer
	Incorrect valve & fuel timing	Contact to KOEL Service Dealer
	Injector needs adjustment	Contact to KOEL Service Dealer
	Engine needs overhauling	Contact to KOEL Service Dealer
Mixing of Diesel with lube oil	External/internal fuel leakage	Check for any leakage and rectify
	Damage or dribbling nozzle	Contact to KOEL Service Dealer
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Worn out cylinder liner & piston	Contact to KOEL Service Dealer
	Incorrect valve & fuel timing	Contact to KOEL Service Dealer
	Injector needs adjustment	Contact to KOEL Service Dealer
	One or more cylinder not working	Contact to KOEL Service Dealer
Excessive oil consumption	Dust entry in air inlet system	Make necessary arrangement to stop dust entry without any modification in air inlet arrangement
	Dirt/clogged air cleaner	Clean air cleaner
	Wrong grade of lube oil used	Change the lube oil as per KOEL specification
	Excessive oil in the sump	Check and rectify lube oil level upto High mark only
	External/internal fuel leakage	Check for any leakage and rectify
	No coolant or level low in radiator	Top up with K Cool super plus
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Worn out cylinder liner & piston	Contact to KOEL Service Dealer
Low Lube oil pressure	Dust entry in air inlet system	Make necessary arrangement to stop dust entry without any modification in air inlet arrangement
	Loose wiring of sensor controller/ connection not proper	Tighten connect as per drawing
	Faulty Sensor	Replace sensor
	Dirt/clogged air cleaner	Clean air cleaner
	Wrong grade of lube oil used	Change the lube oil as per KOEL specification
	Dirt/choked suction tube strainer	Clean the tube strainer
	Lube oil dilution	Check and Change the lube oil as per KOEL specification
	Dirt/clogged lube oil filter	Contact to KOEL Service Dealer
	Clogged oil passage	Contact to KOEL Service Dealer
	Faulty oil pump	Contact to KOEL Service Dealer
	Engine overloading	Ensure Load as per rating or manufacturer recommendation
	Prolonged oil change period	Contact to KOEL Service Dealer
	Engine needs overhauling	Contact to KOEL Service Dealer

Diesel knocking	Poor quality of fuel	Change the fuel and use good quality fuel
	Faulty fuel Pump	Contact to KOEL Service Dealer
	Incorret valve & fuel timing	Contact to KOEL Service Dealer
Mechanical Knock	Loose component	Check and ensure all component should be tighten.
	Component fouling with any other component	Check and ensure all component should fitted properly
	Worngly adjusted valve clearances	Contact to KOEL Service Dealer
	Broken/worn out piston rings	Contact to KOEL Service Dealer
	Excessive end play in crankshaft	Contact to manufacturer or KOEL Service Dealer
	Incorrect bearing clearances	Contact to KOEL Service Dealer
	Worn out cylinder liner & piston	Contact to KOEL Service Dealer
	Damaged main & connecting rod bearings	Contact to KOEL Service Dealer
	Loose mounting bolts	Contact to manufacturer or KOEL Service Dealer
	Loose flywheel/wrong adjustment	Contact to manufacturer or KOEL Service Dealer
Excessive Vibration	AVM pad broken or wrong fitment	Replace if AVM Pad broken.
	Gap between foundation and base frame i.e. foundation level is not proper	Ensure proper foundation. Level should be proper
	Fluctuation in load	Uniform load should be on Genset
	Faulty governor setting	Contact to manufacturer or KOEL Service Dealer
	Loose mounting bolts	Contact to manufacturer or KOEL Service Dealer
	Loose flywheel/wrong adjustment	Contact to manufacturer or KOEL Service Dealer
Engine rotates very slowly during starting	Engine seized	Contact to KOEL Service Dealer
Battery runs down frequently	Under rated battery	Contact to manufacturer or KOEL Service Dealer
	Canopy lampt remain in ON position	Check and ensure proper use of Canopy Lamp
	Faulty starter	Contact to KOEL Service Dealer
	Battery of wrong capacity	Contact to manufacturer or KOEL Service Dealer
	Loose or dislodged wiring	Check wiring,it should be as per drawing and Tightened

TROUBLE SHOOTING - ALTERNATOR

Description	Causes	Remedies
No voltage from Alternator	Decfective voltmeter	Check voltmeter and replace
	Short circuit between phases	Check and ensure no short circuit between phases.
	Neutral earthing short with body earthing	Check and rectify
	Power cable faulty	Cehck and replace
	Excitation circuit open	Check for loose connection
	Incorrect excitation circuit connection	Check for proper connection
	Low residual voltage	Check for residual voltage. If residual voltage is less than 2.5V(L-N) field flashing required for few seconds.
		Field fleshing procedure- 1. Disconnect regulator connections. 2. Connect 12/24V battery keeping F1 to positive and F2 to negative terminal of excitor stator.
	Grounded excitor field	Check and correct
	Rotating rectifier faulty	Check rotating diodes
	Fuse in AVR failed	Replace fuses
	AVR Defective	Replace AVR
Voltage developed but excitation current is high	Rotating diode faulty	Check rotating diodes and replace faulty diodes
	Prime mover	Adjust prime mover
	Prime mover speed is low	Adjust prime mover speed to rated speed
Low voltage build up	V-Trim pot incorrectly set	Adjust voltage by V-Trim pot in AVR
	Low prime mover speed	Adjust prime mover speed
Voltage-High	Loose or no connection to 'U' terminals of the AVR	Check and correct
	Incorrect voltage setting	Adjust voltage by V-Trim pot in AVR
	AVR Defective	Replace AVR
Voltage fluctutation	Speed fluctuation of the prime mover	Set the speed of the prime mover
	Incorrect setting of stability pot	Adjust stability pot in AVR
	Leading load power factor	Correct the power factor
	Load hunting,fluctuates rapidly	Check and reduce the nonlinear load
	High percentage of non-linear load	Rectification, Correct percentage of non linear load

Over loading of Generator	Over loading of generator	Check the load and correct. To be in line with name plate rating
	Blocking of ventilation passage	Check ventilation and clean passage if necessary
	Low speed on load	Adjust prime mover speed
	Low load power factor	Reduce the load
	Generator operating at very high voltage	Check voltage and adjust
	High percentage of non-linear load	Check and reduce the nonlinear load
Excessive vibration and noise	Poor alignment	Re-align properly
	Coupling and foundation bolts loose	Tighten the bolts
	Bearing defective	Replace bearing
Over heating of bearing	Incorrect assembly of bearing	Re-assemble correct
	Bearing damaged	Replace bearing
Generator does not share KW load proportionately	Prime mover speed droop improperly set	Set prime mover speed properly,Droop (Governor) characteristic of engines.
Generator does not share KVAR load proportionately	Quadrature droop incorrect	Set quadrature droop correctly by QDC Pot in AVR
	QDC-CT Polarity reversed	Interchange CT secondary
	QDC-CT are not in W-phase	Check and rectify

TROUBLE SHOOTING GUIDE FOR MANUAL PANEL

Engine does not start by turning the starting key/push botton provided on panel/ KG controller.

- Check connection of battery.
- Check Control MCB . It should be in ON position.
- Check the battery voltage at terminal 1 and 2 inside panel. It should be 12/24 V. If not , check circuit or get the battery charged before making further attempts as battery may be weak.
- The Engine cranks but fails to run.

  - Check the fuel supply line.
  - Check connection of fuel pipe at fuel tank, it may open.
  - Air in fuel line
  - Faulty fuel pump .
  - Water mixed with fuel.
  - Load is disconnected.

TROUBLE SHOOTING GUIDE FOR AMF PANEL

Engine does not start from the AMF panel in any mode.

- Check the DC supply control MCBs and 3 Phase mains supply. These should be in ON Position.
- Check the battery voltage at terminal 1 and 2 in the AMF Panel. It should be equal to 12V/24V. If not, get the battery charged before making further attempts as the battery is weak.
- Check all control wires at control terminals in AMF panel.
- Check battery terminals. They should be properly tightened and should not be corroded.
- Check LLOP connection , it should be properly connected on engine terminal.
- Check all wiring connection should be properly tighten and all should be in order as per drawing.
  - The battery connection may be loose or corroded. Check and correct the problem.
  - If the MAINS supply is available, set the battery charger to boost and wait till the battery voltage is 12/24V.
  - Refer KG controller manual for further trouble shooting related to KG controller

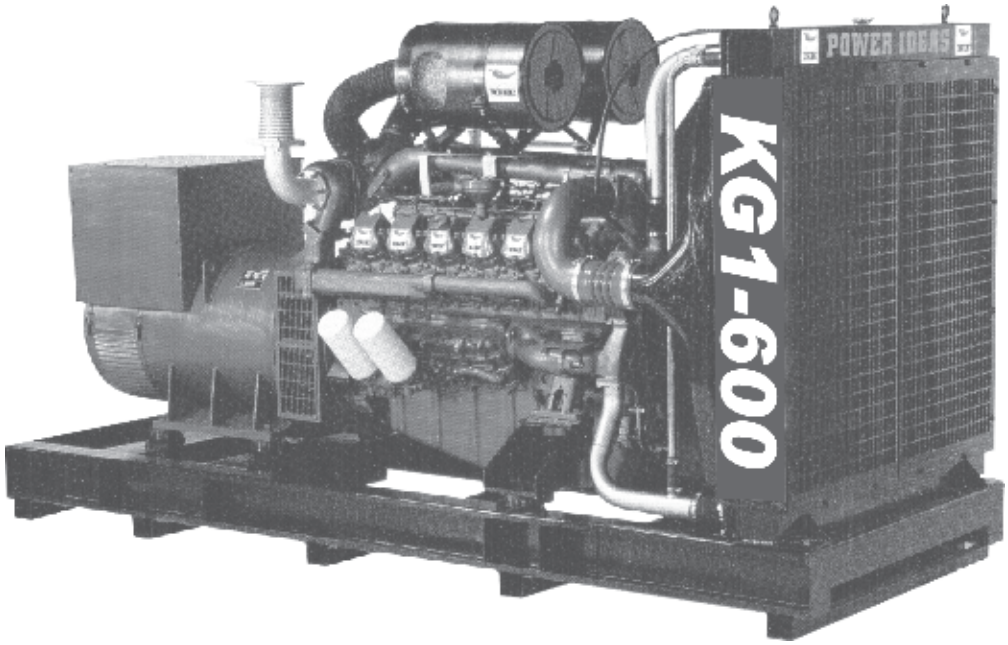
➢ Engine starts but there is no Voltage from the control Panel

- Check HRC fuses/MCB below the DG/MAINS contactor. MCB should be in ON position and fuse should be OK.
- Check the setting of AVM (Alternator Voltage Monitor).
- Check the overload relay , if it is tripped than press the reset lever.
- Check power cable connection from Alternator to control panel.

➢ The Main supply is restored, but the load does not transfer.

- Check the control MCBs these should be in 'ON' position.
- Check if all three phases (RY, YB and BR) of Mains supply are available.

  All three phases should be available and voltage should be more that the setting of mains voltage monitor or AMF Relay/KG Controller
- If required, lower the voltage setting of mains voltage monitor and differential setting or setting in AMF relays/KG Controller Increase the voltage setting gradually if Mains Voltage is not acceptable on load equipment.
- Distance of panel from DG set should not be more than 5 meters.
- Check wiring connection of MAINS contactor. Supply to contactor coil should be available.



All Office Addresses, E-mail Addresses, Phone Nos. are on the Back Cover Page

JAKSON & COMPANY

WARRANTY CERTIFICATE FOR SILENT DIESEL GENSETS

This is to certify that Jakson & Company Silent Diesel Gen Set Sr.No. _____ is warranted to be free from inherent manufacturing defects under normal use and Preventive maintenance. The Silent Diesel Gen Set will be repaired free of cost if it is go out of order due to ***inherent manufacturing defect*** of components as per schedule given below:-

- ***Engine/Alternator*** – warranty 2 years from the date of Commissioning or 5000 Hours of operation or 27 calendar months from date of Invoice, whichever is earlier.
- ***Acoustic Enclosure*** – warranty 2 years for Locks, Hinges, Fuel level gauges, Exhaust Fan from the date of Commissioning or 5000 Hours of operation or 27 calendar months from date of Invoice, whichever is earlier.
- ***Control Panel Parts*** – warranty 2 years for AMF module, Relay card/ board, LVM/GVM, Current Transformer, Battery Chargers, Switches, MCB, and Contactors from the date of commissioning or 5000 hours of operation or 27 calendar months from date of Invoice, whichever is earlier.
- ***Battery*** – warranty 2 years from the date of commissioning or 5000 Hours of operation or 27 calendar months from date of Invoice, whichever is earlier. Refer page no 29 of Installation, Commissioning & Operators manual for warranty terms and conditions.
- ***Engine Parts:*** warranty 2 years for sensors, switches, Engine safety unit, Actuator and Controller card from the date of commissioning or 5000 Hours of operation or 27 calendar months from date of Invoice, whichever is earlier.
- **The warranty is subject to condition that no alteration/addition or repair is done or attempted to be done. The warranty does not cover :-**

1. Normal Wear & Tear of the Components of Silent Diesel Gen Set what so ever it may be like AVM, Foam, Belt, Canopy panel & door, Painting, foam etc.
2. Any type of damages during handling or improper storage/installation & improper maintenance.
3. If K Oil Premium and K Cool Super Plus engine coolant is not used.
4. **If first service check** has not been carried out through Authorized Service Dealer within **50 hrs or 30 days from date of commissioning**, followed by second service check within **500 hrs or 6 months** from the date of first service check, whichever is earlier.

- **This warranty will only be applicable if customer source the filters, K -oil Premium, K-Cool super plus and avail the services from the Kirloskar Oil Engines Ltd Authorized Service Dealer.**

This warranty is not a free service Contract.

* Warranty is not applicable for electrical & canopy items like fuse, charging bulb, contactor coil, foam, canopy door & panels, tube lightetc.

Date: For **JAKSON & COMPANY**

Note- 1. This warranty certificate is only applicable for supplies in India.
2. Warranty is applicable as per Kirloskar Oil Engines Ltd guidelines and Kirloskar warranty card can supersede this warranty certificate.
3. **Use Battery within one month from the date of Invoice** and follow all the guidelines for upkeepment of battery otherwise repairing/recharging/replacement under warranty will not be applicable. All charges pertaining to recharging of deep discharge battery will be to customer account.
4. ☞**After commissioning of SDG set, responsibility of attending complaints under warranty and otherwise is of Authorized Kirloskar Area Service Dealer.**

REVALIDATION POLICY FOR GENSET

Revalidation Eligibility:

1. Genset revalidation is applicable for Gensets which are not in operation for 6 months or beyond from the date of GOEM invoice.
2. Revalidation activity will be carried out on Genset at customer's end before commissioning / PRF.
3. The revalidation activity is to be solely owned taken care by GOEMs / KGDs. KOEL and their authorized Service Dealers will not be liable for any kind of communication with end customer regarding revalidation activity.
4. Revalidated Engine / Genset should be commissioned along with completion of PRF within 1 month from the date of revalidation else warranty benefits will not be applicable.

Revalidation Execution Process:

A. For revalidation GOEM /KGD / Customer has to approach nearest Service Dealer / KOEL Helpdesk along with Engine / Genset details.
B. Service Dealer will attend the engine revalidation on chargeable basis as recommended in Annexure H.
C. After revalidation activity Service Dealer will issue revalidation certificate for said Genset to End Customer and subsequently complete the request process in Pulse.
D. Ownership transfer / PRF (End customer name) to be carried out by GOEM /KGD in Pulse after completion of revalidation and commissioning.

Note: Incase Genset is started and used without following the revalidation process / PRF process, the warranty will be null and void.

Annexure E (At Customer End)

Revalidation Situations – There are four situations as E1, E2, E3 and E4.

Situation E1

Genset revalidation is required where Genset not commissioned at customer's end more than 6 months and below 12 months from date of GOEM Invoice.

Following check points to be carried out for situation E1

1. Check contamination in lube oil, if found contaminated replace Lube Oil. Check fuel tank & Filters. If found that filters are damaged or can't be used then only go for replacement otherwise not.
2. Check conditions of V Belts, all Hoses, Air filter, Fuel pipes, rubber parts and replace if required.
3. Check turbocharger free rotation and for water, dirt, foreign particles ingress in Intake / Exhaust system, initiate corrective action accordingly.
4. For HE cooled engines, check heat exchanger & CAC for raw water entry, also check for cooling tower basin cleanness and control valve function.
5. Check electrical parts for physical condition, wiring connections, intactness and functionality. Same check may please be carried out for Alternator by opening a terminal box.
6. Check monitoring and safety devices for functionality.
7. Check FIP rack freeness and rectify as per manufacturer's guidelines.
8. Electrical system -Check Main Alternator winding insulation by 500 volt megger. Insulation Resistance of the winding and earth should be greater than 2 Mega Ohm. If Resistance is less than this value, in case of deviation rectify through authorised Service Centre.
9. Start Genset and check its performance as per test cycle and in case of abnormality rectify as per standard operating practices.

Situation E2

Genset revalidation is required where engine/ Genset not commissioned beyond 12 months and below 18 month from date of GOEM Invoice.

In addition to the above checks (carried out in Section –E 1), following additional checks to be carried out -:

- Oil and filter change are mandatory.
- Air Intake / Exhaust system –Open cylinder heads, check the condition of liner & piston top for rust formation, any damage, scratch marks, foreign material entry or any abnormality and initiate the corrective action accordingly. Air filter, rubber hoses and belts, can be checked and to be replaced if needed.
- Check the turbocharger rotational freeness, axial and radial play of turbocharger. If turbocharger found jam, get it rectified from authorized turbocharger Dealer. In addition to the above also check oil supply and return lines of turbocharger.

  Lube Oil System –Drain engine oil, remove oil sump, check main & connecting rod bearings, crank shaft for rust formation etc. Refill the fresh engine oil after thorough inspection of above.
- Fuel Injection System -Remove Fuel injection pump & injectors, get them calibrated from authorized service centre. At the time of fitment ensure thorough checking and replacement of relevant fuel injection system accessories.
- Cooling System -Check & clean the radiator fins for accumulation of dust and foreign particles. Check Water pump freeness, replace if necessary. In case of HE cooled engine change the raw water in cooling tower basin, also check the raw water pumps, valve for operation. In case of air cooled engine, remove air baffle, check for dust and foreign particles in fins. Blow compressed air from exhaust outlet side.
- Electrical System - Check Main Alternator and Engine Electricals as per process mentioned in situation E 1.
- During testing of Genset, check its performance as per test cycle and in case of abnormality rectify as per standard operating practices.
- Blow By, smoke and other relevant parameters to be checked.
- Genset to be tested at least for 90 minutes on full load.
- If blow by or any other abnormality is there during testing then we should go for the checking of cylinder heads and liners, etc.
- The replacement of the parts will purely be restricted to the most desired one & the labour cost charged towards revalidation activity must be as per KOEL recommendation.

Situation E3

Genset revalidation is required where engine/ Genset not commissioned beyond 18 months below 24 month from date of GOEM Invoice.

On GOEM's request KOEL may consider Revalidation policy & the warranty offer as a very special case with a prior approval of VP –Marketing Sale & Service for Gensets which are not commissioned at Customer end for more than 18 months and below 24 months from the date of GOEM invoice. The authorised KOEL service dealer will carry out the necessary repair work on chargeable basis in order to bring Genset into operational condition.

Situation E4

Genset revalidation is required where engine/ Genset not commissioned beyond 24 months from date of GOEM Invoice.

Revalidation policy is not applicable for Gensets which are not commissioned at Customer end for more than 24 months from the date of GOEM invoice. However on GOEM/ KGD / Customer request, the authorised KOEL service dealer may carry out the necessary repair work on chargeable basis in order to bring Genset into operational condition.

Annexure F (At Customer End)

Revalidated Genset warranty period

Situation E1 –Genset revalidation is completed at customer's end where Genset not commissioned more than 6 months and below 12 months from date of GOEM Invoice.
Or
Situation E2 –Genset revalidation is completed at customer's end where Genset not commissioned more than 12 months and below 18 months from date of GOEM Invoice.
Or

Situation E3 –Genset revalidation is completed at customer's end where Genset not commissioned more than 18 months and below 24 months from date of GOEM Invoice.

Or

Situation E4 –Genset revalidation is completed at customer's end where Genset not commissioned more than 24 months from date of GOEM Invoice.

After Revalidation Warranty Period are as below:

For Situation E1 & E2 –Standard warranty is applicable i.e. 24 months from the date of commissioning or 5000 normal operating hours.

Situation E3 -KOEL Warranty will be on the basis of prior approval of VP –Marketing Sale & Service.

Situation E4 –KOEL Standard Warranty is not applicable.

Annexure G (At Customer End)

Responsibilities of Stake Holders

GOEM / KGD:

- GOEM/ KGD should inform the revalidation policy in detail to the end customer where they feel (more than 6 months) the engine or genset may require revalidation at customer end.
- GOEM/KGD should send reminders in writing to end customer on revalidation requirement whenever the date of commissioning of Genset is going beyond 6 month from the date of GOEM invoice.
- GOEM / KGD should ensure completion of revalidation process prior to commissioning.
- GOEM / KGD should ensure not to carry out PRF without revalidation.
- GOEM / KGD are expected to contact KOEL Help desk /nearest service dealer for raising "Revalidation request" in pulse along with engine details (Application code, ESN etc.)
- To ensure smooth execution of activities and Commercial Settlement between customer and KOEL Service dealer.
- Ownership transfer / PRF to be carried out in Pulse in the name of end customer after completion of revalidation.
- Collection of Revalidation Certificate from service dealer.
- GOEM to initiate approval process providing all necessary details of delay in commissioning to VP – Marketing Sale & Service.

Service Dealer:

- To contact End Customer within 24 hours from the time of revalidation request generated in Pulse.
- Completion of revalidation activity as per KOEL Policy.
- The replacement of the parts will purely be restricted to the most desired one & the labour cost charged towards revalidation activity must be as per KOEL recommendation.
- The Customer should be well educated on warranty policy, CSP schedule, operation and maintenance practices, safety tips etc. during the Revalidation activity.
- Ensuring minimum down time of Genset through adequate availability of parts, trained personnel, recommended tools, communication facility and mobility.
- After completion of revalidation activity handing over revalidation certificate to GOEM/ KGD/ End Customer.
- Revalidation activity service request completion in pulse.
- Warranty Extension of concerned asset after completion of revalidation activity through KOEL HO (Warranty Department).

Customer:

- The genset should be kept under a covered area in order to protect from rain water, dusty environment prior to the commissioning. At the same time enough care should be taken in order to minimize the damage / deterioration of Genset components.
- If customer wants to store engine /idle for more than 6 month or above, he/she must carry out preservation process as recommended by KOEL. The preservation of engine services can be availed through KOEL Authorized Service Dealers.
- If GOEM / KGD has informed customer in writing the revalidation policy then customer is equally responsible to call or remind before commissioning, whenever the date of commissioning of Genset is going beyond 6 month from the date of GOEM invoice.

Annexure I

(Revalidation Certificate on KOEL SD Letter head)

Date: _____

To whomsoever it may concern

This is to certify that Genset revalidation completed for Application Code / ESN:

_____ as per KOEL revalidation guidelines.

GOEM Name: _____

GOEM Plant Location:_____

Revalidation Date: _____

Instance ID:_____

Revalidation Location: ☐ At Customer Site

☐ Customer Ware House

End Customer Address & Site Location :_____

Kindly submit this certificate during PRF registration for warranty activation. KOEL SD Manager,

Name & Signature

Warranty Terms and Conditions for Battery :

Kirloskar Green Battery warrants that this product is free from defects in materials and workmanship affecting normal use, and is in conformity with the respective specifications of the product for the warranty period subject to the following:

1. The warranty period for batteries, will be 24 months or 5000 hrs from the date of commissioning whichever is earlier.
2. Company batteries are warranted against all defects arising solely from the use of faulty material or poor workmanship. Consequential liabilities will not be entertained.
3. In the event of any complaint, the battery shall be returned to the authorized Kirloskar Service Dealer.
4. In the event of repairs /replacement, the original warranty term for such repair /replacement will not be extended.
5. Warranty will not be entertained after the expiry of warranty period.
6. Recharging is not covered under warranty.
7. All liabilities under this warranty will cease in case of:

a) Usage of any consumables items like additives or dopes other than distilled water.
b) Damage due to natural calamity, accident, misuse, abuse, negligence, commercial use of modification of the product, improper operation, installation or maintenance of the product.
c) Improper voltage supply,repair or attempted repair by any party other than a Company's authorized personnel
d) Fitment of additionall accessories over the original fitment
e) The warranty card/product serial number/barcode sticker is altered or defaced in any manner whatsoever
f) Battery defect is caused by faulty electrical systems, improper handling, service by unauthorized dealers/auto electricians, wilful abuse, destruction by fire, collision, theft or recharging
g) Breakage of container and cover
h) Damage to the battery caused due to contamination of the electrolyte.

8. Warranty settlement is based on the report generated by an automated failure analysis process using state of the art equipment. Company decision's shall be final in case of any dispute.

To get maximum life from your battery. It is advisable that:

a) The top of the battery must be kept clean & dry. Vaseline should be applied to cable clamps and terminals, Never apply grease. Terminal Corrosion dirt and moisture cause loss of power and make the battery weak.
b) Battery open circuit voltage checked regularly and recorded in the service record.
A faulty electrical system will damage the battery.
c) The charging voltage setting measured across the battery terminals shall be maintained a 14.00+0.20 volts for 12v system and 28.0V +0.5 Volts for 24V system.
d) The recommended specific gravity of a fully charged battery is 1.270 _0.005 at 27.C.In case of any deviation from this appropriate action in correcting the same needs to be taken.
e) Electrolyte level must always be maintained in line with the bottom of the vent hole. In case of any drop in the electrolyte level, add pure distilled water. NEVER ADD ACID.