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To all societies

ADVISORY TO SOCIETIES
PREVENTIVE MAINTENANCE OF ASSETS

1. A preventive maintenance schedule for all the electrical equipment fitted / installed in the projects is given below as an Advisory for societies. These routines if followed in letter and spirit will be helpful in enhancing the life of the equipment and will also ensure the optimum performance of the equipment.

(a) **DG SETS.**

(i) **Servicing.**

(aa) After every 250 hours of running
OR
Once in six months
(ab) Replacement of Lub oil filter and Diesel Filter
(ac) Replacement of Engine oil.
(ad) Tapping clearance should be checked
(ae) Fuel Pump should be lubricated.

(ii) **Daily check**.

(aa) Any oil and water leakages should be checked.
(ab) Coolant level in the radiator.
(ac) Engine oil level.
(ad) Diesel oil level.
(ae) Cleaning of dust accumulated.

(iii) **Weekly check**.

(aa) Check battery Electrolyte and topped up if required.
(ab) Fan belt and Dynamo belt.
(ac) Coupling and coupling bolts.
(ad) All Electrical and battery connections.
(ae) If DG set is idle, run DG Set once in a week.
(af) Hose pipe connection.

(iv) **HALF yearly check**

(aa) Servicing
(ab) Check function of all meters and controls.
(ac) Anti corrosion chemical should be added to the radiators, if required.
(ad) Cleaning of air filters.
(ae) Any vibration and alignment.
(af) Adjustment of tapings.

(v) **Yearly check**.

(aa) Painting the DG set and Electric panel.
(ab) Check the serviceability of all meters and controls.
(ac) Check anti vibration pads.
(ad) cleaning and descaling of radiator.
(ae) Condition of coupling.

(b) **HT CIRCUIT BREAKER (VCB)**

(i) **Daily check**.

(aa) Check load (AMP) and rated voltage is correct.
(ab) Visual check for ingression of moisture/water,

(ii) **Quarterly Check**

(aa) All cable connections
(ab) All relays and controls are functioning properly.
(ac) Remove grass, bushing etc. within 3 meter of radius.

(iii) **Yearly check**.

(aa) Complete servicing of VCB through OEM.
(ab) Complete cleaning of bus bar and insulators for depositing of dust.
(ac) Tightening of all nuts, bolts of cable and insulators and earth connections.
(ad) Calibration of all protective relays such as over current, earth fault and short circuit relays and finally set at the desired setting as per load required and should be lower than the setting of main receiving station.
(ae) Check earth resistance.

(iv) **Yearly check**.

(a) Painting once in two years.

(c) **PUMPS.**

(i) **Daily check**.

(aa) Check incoming voltage is within the safe limit.
(ab) Check ammeter reading after starting the pump to see that the current does not exceed the rated current.
(ac) Check discharge pressure.
(ad) Check pump temperature and leakage.
(ae) Check Guarding arrangement.
(af) Check any extra sound coming from pump.

(ii) **Weekly check**.

(aa) Greasing of Nipples
(ab) Check coupling and glands
(ac) Check foundation bolts, nuts and plug or vibration.

(iii) **Monthly check**.

(aa) Check for any vibration.
(ab) Check noise and alignment.
(ac) Check all Electrical connections, wiring if found any loose connection then tighten the same.
(ad) Check coupling bolt.

(iv) **Half Yearly check.**

(aa) Check gland pockets
(ab) Check any plug in bearings then replace if required.
(ac) Check impeller casing.
(ad) Check starter contacts, replace immediately if found defective.
(ae) Check the accuracy or setting of replay.

(v) **Yearly check**.

(aa) Paint the pump set and Electrical panel.
(ab) Check the serviceability of ammeter, voltmeter, and Pressure Gauges and pump Electric Panel.

(d) **FIRE SYSTEM**

(i) **Daily Testing**.

(a) The indicator panel and its smooth operation of fault should be recorded in the log book and should receive urgent attention.

(ii) **Weekly Testing**.

(aa) Operation of a trigger device and sounder in any zone. All zones are tested. Testing date should be marked. It is suggested that each time a particular zone is tested. If the operation of alarm system fails, the fault should be rectified immediately.

(ab) Checking the level of battery electrolyte and its function and ensure that they are in good condition.

(iii) **Quarterly Testing**.

(aa) Complete operational rehearsal with required manpower and inspection of all equipment, machinery and leakages etc. On completion of testing, the results should be recorded and kept for record for the purpose of renewal of NOC from Fire Authority.

(ab) Check all Electrical connections and Electric Panel.

(iv) **Annual Tests**.

The annual test should be carried by the local Fire Authority and renewal of license/NOC from the Authority.

(e) **TRANSFORMERS**

(i) **Daily check**.

(aa) Any oil leakages
(ab) Air breather, Colour of Silica Gel
(ac) Air circulation
(ad) Oil Temperature

(ii) **Monthly Check**

(aa) Oil level in Reservoir
(ab) Cables and Earth connections

(iii) **Half Yearly check**.

(aa) Check bushings LT & HT side for any crack and cleaning after shut down of transformer.

(ab) Cable boxes LT & HT side

(iv)**Yearly checks.**

(aa) Dielectric strength of transformer oil (3 times of rated capacity) required 33 KV for 11 KV Transformer

(ab) Calibration and setting of relays as per load.
(ac) Earth Resistance

(v) **2-Yearly**

(a) Painting once in two years.

(f) **LIFTS BY LIFT AGENCY UNDER AMC**

(i) **Daily Checks.**

Daily by lift operator and test checked fortnightly by supervisor.

1. **Landing locks**

(aa) Movement of car with gate open.
(ab) Try to open the gate when car is not a landing.

2. **Car gate switch**

(aa) Movement of car with gate open.
(ab) Open the gate when car is moving.

3. Door operator safety (on automatic doors).

4. Emergency call bell.

5. Emergency stop button works.

6. Car lights, landing lights and call buttons.

7. Lift locks.

(ii) **Fortnightly Maintenance Operation:**

1. Check that lifts stops in downward direction properly with 25% overload with operation of emergency stop when the lift is moving at full speed.

2. Check that leveling is within limits + 75 mm for single speed lifts and + 10 mm for other lifts (For certain makes of lifts slightly larger tolerances may be permitted).

3. Check and lubricated by grease cup or top oil on sleeve type bearing on
(aa) Sheave shaft.
(ab) Motor Shaft.
(ac) Deflector sheave shaft.
(ad) Governor pulley.

4. Check and lubricate sleeve bearing of governor tensioning pulley at the pit.

(iii) **Controller:**

1. Clean contacts and arc shields with carbon tetrachloride.

2. Move relay armature by hand for free movement and see that contacts are properly aligned.

3. Replace carbon contacts if worn out.

4. Check flexible leads to relays.
5. Check use of controller and mains.
6. Check oil level in dash pots.

(iv) **Motor Generator and AC/DC motor.**

1. Check and adjust carbon brushes spring pressure commutator. Reseat brushes.

2. Grease bearings.

(v) **AC Motor.**

1. Lubricate bearings.
2. Clean ventilation passages.

(vi) **Gear Box:**

1. Inspect for stray noises and oil leaks.
2. Checks axial play of worm shaft.
3. Lubricate bearings and oil top up in gear box.

(vii) **Brakes.**

1. Clean and trace source of oil leakage if any.
2. Adjust clearance between shoes and drum

(viii) **Selector**.

1. Clean contacts.
2. Adjust for proper leveling.
3. Check tape safety switch.
4. Lubricate shaft bearings.
5. Check performance without load and with full load.

(ix) **Governor.**

1. Lubricate bearings.
2. Check that the levers work smoothly.
3. Check that electrical contact opens before the rope gets locked.

(x) **Ropes.**

1. Check condition of hoist ropes and governor rope.
2. Check slack rope safety switch.
3. Lubricate rope if too dry.

(xi) **Hoistway.**

1. Lubricate guides and guide shoes.

2. Check that the buffers are in proper position and measure and record counter-weight buffer clearance with car at the top.

(xii) **Retiring Cam and Locks.**

1. Check operation of cam and of lock from the top of the car at each landing. Check that retiring cam solenoid is not getting overheated and that movement of the cam is smooth.

2. Check that all locks are functioning properly mechanically and electrically after opening the cover.

3. Check all set screws and springs and replace if necessary. The lever should lock the break properly.

4. Check that the retiring cam does not touch the lock roller at the landing which is being passed.

5. Check that the car gate switch operates properly.
6. Check car top controls and emergency stop.
7. Check door closer safety, clean and readjust if necessary.
8. Lubricate top track and door motor and linkage.
9. Check that landing doors can be opened by emergency keys.

(xiii) **Quarterly Maintenance Operations:**

(a) **Machine room.**

1. Check and adjust overload relay and phase failure relay.

2. Check power wiring terminations in switch, motor, controller and power switching relays.

3. Check commentator.

4. Check lubrication of all equipment.

(b) **Hoistway:**

1. Check rope fastenings at the car and counterweight.

2. Check guide clamps.

3. Check upper and lower limit switches for proper connections. After physical inspection get the lift to overtravel by holding from controller and see that the switches operate properly.

4. Check guide clearance and adjust.

5. Check condition of travelling cable and terminations at junction.

(xiv) **Annual Maintenance Operations:**

1. Inspect the car frame for bends or cracks.
2. Check insulation cable.
   (a) Incoming cable.
   (b) Switch and leads upto controller.
   (c) Between difference power relays.
   (d) Motor.
   (e) Power cores in the travelling cable.

3. Check operation of the car over-speed safety gear by moving the levers manually and see that the safety locks up properly.

4. Check that the sheave is tight on the shaft. Also check with hammer sounding for checks. Check sleeve bearings, clean and relubricate. Adjust for proper aerial play

5. Unload car:

   (a) Check the work gear back lash and adjust by removal of shims as required.
   (b) Check thrust bearing and check axial play and realign.

6. Check motor bearings, clean and re-lubricate.
7. Check that the gear coupling bolts are tight.
8. Check oil seals and gear body and fill fresh oil.
9. Remove brake shoes, clean and refit or replace brake linings. Inspect fulcrum pins, springs, clean and reassemble. Check that brake drum is not soiled or worn unevenly.
10. Clean guides and guide shoes with carbon tetrachloride and flushing oil and relubricate. Thereafter clean the pit.

(xv) **Maintenance Operations Every Five Years:**

Overload the lift and run down to check operation of car and overspend safety gear. By manually holding at the controller, run the lift beyond the limit so that,

(a) Counterweight hits the buffer.

(b) The car hits the buffer at rated speed.

<u>Note</u> : The upgradation of functioning and requirement as per safety & allied norms pertaining to lifts according to applied standards which are revised from time to time, shall be the responsibility of the society. AFNHB will not be able to accommodate any requests in the context from either society of individual allottee.