DIRECTOR GENERAL BORDER ROADS

GENERAL MAINTENANCE INSTRUCTION NO. 241

ON OPERATION AND MAINTENANCE OF

CONCRETE MIXER GAMZEN 750 RD

INTRODUCTION:

(a) The Gamzen Model RD-750 reversible drum Concrete Mixer batch type of 0.5 cubic meter mix output per batch fitted with Kirloskar air cooled diesel engine HA-394 developing 20 HP@ 1500 RPM at NTP fitted with cold starting device/aid, having three weighing aggregate bin, electronic weighing system with load cell, water flow electronically controlled with auto cutoff.

(b) This GMI gives the technical specification and know how on the operation, maintenance and repair procedure of Concrete Mixer Gamzen 750 RD to ensure maximum performance and safe/satisfactory operation. Compliance with procedures given in this GMI will enable to get desired maximum service from the equipment.

(c) Maintenance of Concrete Mixer Gamzen 750 RD will lead to long life, trouble free operation and less frequent break downs and also to reduce maintenance cost. The periodic maintenance must be carried out according to the **'Periodic Maintenance Schedule'** described in this GMI. Periodic Maintenance is essential for preventing troubles and accidents to ensure satisfaction and safety. Daily care and inspection is essential for prolonging the operating life of the equipment and for its safe operation. All information and instructions given in this GMI is based on the latest Operator's manual and service booklet provided by the firm.

AIM:

The instructions are issued as guidelines for general, preventive maintenance schedule and lubrication of Concrete Mixer Gamzen 750 RD manufactured by M/s Gamzen Plast Pvt Ltd for regular attention to keep the equipment in good mechanical condition which must be strictly followed.

ACTION BY:

(a) User unit: To carryout periodic inspection and monitor regular/periodical maintenance as laid down in this instruction and record the tasks done in log book.

(b) Field Workshop :

(i) To carryout and monitor maintenance schedule and oil changes as per periodical maintenance laid down in the maintenance instructions and to check the record of maintenance including lubrication.

(ii) To advise the user unit in respect of any lapse noticed.

(c) Mobile Maintenance Team: To ensure that proper maintenance is carried out and submit report accordingly to Task Force Commander and OC Wksp for their necessary action.

DETAILS:

This instruction includes the following aspects:-

a)	Operating Procedure	- Appendix 'A'
b)	Periodic Maintenance schedule	- Appendix 'B'
c)	Technical Specification	- Appendix 'C'
d)	Installation of concrete Mixer	- Appendix 'D'

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Appendix 'A'

OPERATING PROCEDURE

Safety Instructions

1. Do not operate the Machine without Engine Guard ever as fine particles of Cement / Dust are likely to enter through Air Cooler/Air Intake element. Once the Dust enters the Engine, the Engine life will be compromised. Please ensure that after every Check up/Maintenance Guard is replaced.

2. Cold Starting arrangement should be strictly used for operating very near and below sub zero temperatures only otherwise engine can be severely damaged beyond repairs as specified by engine manufacturer in their operation & maintenance manual.

3. When loader Bucket is in operation water filling valve should always remain in closed position. Since the supply of Hydraulic oil to water valve is through the loader bucket valve, this develops air blockage in the system.

4. Dial Gauge calibration/Electronic weighing is valid for 6 months only from the date of manufacturing of the machine as per weights and measures department Govt. Of India hence it is advisable to recalibrating it after 6 months.

5. Drum/Cylinder relief valves pressure is pre-adjusted.

6. While starting the Engine Drum/Cylinder Valve should be in neutral position.

7. While stopping the Engine, Drum should not be rotating i.e. It should be stationary.

8. Dial Gauge is calibrated for 1200 Kgs. Do not exceed above 1050 Kgs. (This is not applicable in Electronic Weighting Machine).

9. In electronic weighing machines load cell is calibrated for 1200 Kgs.

10. Water filling operation cannot be carried out while material is transferred from Bucket to drum i.e. at all other time while bucket is loaded or lowered or while idling water can be filled in the Tank/Drum.

11. During transportation the loader bucket should be in loading position and chain in hooked position at the same time pressure should be released from the system and bucket load should be on the chain.

12. In case of electronic weighing machine Loader Bucket should be in down position.

13. Loader Bucket/Hopper should not be banged while Loading/Unloading the material. The calibration is directly connected with the Loader Bucket. The calibration is directly connected the Loader Bucket. The calibration will not be disturbed if this care is taken. In case of electronic weighing machine Load cell will get damaged.

14. Ensure before starting Water Pump, the Pump has to be primed first & then start the Water Pump. Non-return foot valve is to be fixed on water suction line.

15. Ensure the Water Pump should not run dry or else the Pump seal will be damaged instantly.

Do's

1. Check all the electrical connection for tightness
2. Check the hydraulic & engine oil level.
3. Check the drive assembly.
4. Check all the lubricating points.
5. Check whether the machine is on level surface.
6. Check all the nuts & bolts for tightness regularly.
7. Check the proper resting of the hopper.
8. Operate the machine only by trained operator.
9. Maintain the log book properly & daily.

Don'ts

1. Do not operate the machine if electrical connections are loose.
2. Do not operate the machine if oil is below minimum level.
3. Do not operate the machine if assembly is not proper.
4 Do not operate the machine if lubricating points are dry OR less oiled.
5. Do not overload the machine.
6. Do not operate the machine if nut bolts are loose.
7. Do not operate the machine if operator is not properly trained.

Appendix 'B'

PERIODIC MAINTENANCE SCHEDULE

1. Use Engine Oil SAE 15W 40 or as specified by engine manufacturer in their operation & maintenance manual. Filter element to be replaced after 50 Hours of operation. Next change of filter element is after 100 Hours run and thereafter at every 500 Hours run.

2. Fuel Oil/Diesel Filter elements to be replaced after every 500 Hours of operation as specified by engine manufacturer in their operation & maintenance manual.

3. Air Intake Filter element is Oil submerged type. After first 50 Hours cleaning is to be done. Thereafter at every 100 Hours cleaning and replacement of Oil of Grade (SAE 20W / 40) is to be done (Approximately 50 ml). It is very essential that this is done regularly because Dust/Cement particle are most likely to enter the Engine through this element (This is not applicable in air cooled engines).

4. Hydraulic oil Filter suction side to be replaced initially after 500 Hrs, thereafter every 2000 Hours of operation. This element cannot be cleaned and reused. If not replaced in specified duration it will result in damages to Hydraulic pump/Motor.

5. Hydraulic oil Filter return line side to be replaced initially after 500 Hrs, thereafter every 2000 hours of operation. If required this element can be cleaned and replaced.

6. Clean Hopper & Mixer Drum daily at the end of operation. Anything setting inside these units will affect efficiency of Machine.

7. Grease Hopper Pin daily (Two Grease Nipples are provided on Hopper Pin).

8. Grease Bearing of Pinion Shaft daily. (Two Grease Cups are provided on Bearing Plummer block).

9. Grease Gear coupling periodically.

10. Use Cardium compound on Drum Crown Wheel and Pinion periodically.

11. Check connections of Hose pipes daily, if leakage is observed, immediately attend the same.

12. Check the spline coupling connection between Engine and Pump and Grease daily.

13. After every 500 working Hours Check clearance between Crown Wheel and Rollers by moving Drum in Clockwise and Anti-clock wise direction. If it is not rotating freely or rotating very freely then use jacking bolts provided in the Top Roller for adjusting. Adjustment done should be accurate otherwise it would cause Noise, Vibrations and Stress to the rotation.

14. Check backlash between crown wheel tooth and pinion tooth, adjust if required.

15. Change Hydraulic oil Grade 68 & and fill up by looking at the visual level indicator.

16. Recommended Gear Oil grade (140) or grade (80W 90).

Appendix 'C'

TECHNICAL SPECIFICATION

Description	Concrete Mixer Gamzen 750 RD
Engine	Kirloskar HA 394 Air cooled diesel Engine
Machine Capacity/Power	750 Ltr/20 HP Engine @ 1500 rpm
Drive	Hydo motor
Machine Frame	Rectangular and Hollow
Gear Ring	Solid Steel
Mixing Blade	8 Nos
Weighing	
Dial Gauge	1200 Kgs
Electronic Load Cell	1 / 2 / 3 Bin
Dimensions	
Length of the machine	3500 mm
Width of the machine	2200 mm
Height of the machine	2800 mm
Output	15 Cum
Drum length	1990 mm
Drum diameter	1295 mm
Rotary speed of mixing drum	16/20 rpm
Size of drum opening	535 mm
Water Tank	180 Ltrs
Pneumatic wheels/Tyres	6.00 x 16
Loading/weighing	hydraulically
Hydraulic Fluid	Hydraulic-68
Hydraulic Tank	135 Ltrs
Dial calibration	1200 Kgs
Drum discharge height	1500 mm
Mechanical Slew Jacks	04 Nos
Electronic Load Cells	Digital/Electronic
Electronic Water meter (Optional)	Digital
Ad. Mixer unit (Optional)	Digital
Print out facility (Optional)	Inbuilt printer
Battery	12 V x 120 AH

Appendix 'D'

INSTALLATION OF CONCRETE MIXER

1. 02 Nos hooks are provided on the mixer body stand for loading/unloading. Machine can be positioned and leveled by Supports so as to enable it to mix or discharge the aggregate in best possible way. Connect the water supply. The Dial Gauge is pre-calibrated. Both control valves pressures are pre-set.

2. Before starting the mixer ensure that machine is leveled properly to minimize vibrations and jerks since heavy vibration disrupts the water intake system & Calibration System.

3. While operating lower the Hopper using control lever ensuring it does not touch the ground When the Dial Gauge shows "0". Cylinder should be partially open (Approximately 5 to 10 mm) so the system is pressurized or activated.
(This is not required in case of electronic weighing machines).

4. Now load the material into the bucket ensuring a first layer of gravel (aggregates), cement followed by sand (Followed by more sand and gravel). Start the drum, enabling it to turn in the mixing direction. Add half the water required for mixing. Allow the bucket to ascend by using the distributor lever. After the bucket ha ascended, wait for it to have completely unloading the material into the drum. Add the remaining water. After mixing, stop the drum, wait until it is completely at stand still and reverse the rotation direction to unload the concrete. (It is advisable to complete the unloading of the concrete with no interruptions).

5. It is obvious that the above mentioned cycle refers to a single operation, but when the machine is working, the operator can load the bucket while mixing is accomplished. This practice will reduce work time to the minimum while the machine will be able to achieve the highest possible hourly concrete output.

6. Suction pipe used to supply water to water pump should be of non collapsible type.