

DIRECTORATE GENERAL BORDER ROADS
GENERAL REPAIR INSTRUCTION NO 55
ON
SONIA TAR BOILER – LIKELY DEFECTS,
REMEDY AND PRECAUTIONS DURING USE

Summary

1. A large number of oil-fired TAR BOILERS are held in the Border Roads Organisation. Some Chief Engineers (Projects) had reported that these TA BOILERS are prone to frequent brake down due to the clogging of Nozzles and burners and various other defects. Projects are, therefore, reluctant to use oil-fired Tar boilers. On detailed investigation, it has been found that the clogging of nozzles is mainly due to the use of incorrect fuel other than the recommended ones by the manufacturer. Always use LIGHT DIESEL OIL or KEROSENE (SUPERIOL). Although KEROSENE (SUPERIOR) is costlier than LIGHT DIESEL OIL, it causes less formation of smoke and soot and thereby reduces chances of clogging of nozzles. Necessary instruction has already been issued vide HQ DGBR letter No 13515-Q/Hot Mix/DGBR/E2 (Res) dated 5 Jan 73 for advising lower formations to make full and correct utilization of Tar Boilers.
2. A detailed study of the likely defects on SONIA oil-fired Tar Boilers has been made and it is seen on its perusal that most of the defects develop due to non-observance of the preventive Maintenance schedule and common maintenance lapses by the operator in carrying out regular servicing. Details of the same have already been issued along with CHECK CARD for the guidance and compliance of all concerned vide GENERAL MAINTENANCE INSTRUCTION NO 79 dated 30 dec 72.
3. All users are cautioned to exercise due precautions during its use to avoid chances of fire break out and even fatal accidents.

Aim

4. (a) To summarize the likely defects/ symptoms in the SONIA TAR BOILERS with suggested remedial action.

(b) To list out essential precautions to be taken during its usage to avoid fire accident.

Action

5. (a) Projects / User Units: To intimate a Work Order on the maintaining Field Workshop, where the remedial action is beyond their scope. Also to caution all concerned for observance of the precautions during its usage.

(b) Field Workshops : To repair the equipment on receipt of Work Order.

6. Defects and Remedy: A list of likely defects / symptoms, probable cause (s) and suggested remedial action are tabulated in appendix 'A' attached.

7. Precautions: When the burner is started after sudden stop, take precaution before firing the nozzle that there is no person or inflammable material right behind the burner, as there is a possibility of the burner back-firing and causing fire break out.

8. When the burner is stopped, the oil should be released only :

(a) If the firing nozzle is hot,

(b) When the firing nozzle has been properly pre-heated.

9. For Starting of Spray Pump:

(a) If the Bitumen is heated up to melting point and the spray pump does not function then hot bitumen may be put in the air bottle from the top and the pump may be operated.

(b) If the pump does not work, open the air bottle and top the steel balls, spray pump should operate.

HQ DGBR GRI No 55

Dated 10 Jan 73

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Appendix 'A' to HQ DGBR
GRI No.55 dated 10 Jan 73

Srl No	Nomenclature	Defect (Symptom)	Probable Reasons	Faults / Causes	Suggested Remedy
1	2	3	4	5	6
1	Spray Pump	Spray pump does not work	(a) Gasket torn out. (b) Filters are clogged. (c) Piston rings broken. (d) Bush seats worn out (e) JAIN DORI (Asbestos rope) is cut at different places.	Cold bitumen is pumped. Due to surrounding grit and sand particles. Due to abnormal pressure placed on the spraying handle. Due to sand particles going inside the spray pump The flange bolts not being screwed equally.	Heat Bitumen up to 350 ⁰ F. Replace gaskets of the spray pump. The filters should be kept free and clean. Replace the piston rings. If wearing is up to 1/16", first grind the bysg bearing and see if functions properly, otherwise replace brass seats. (i) Replace JAIN DORI (Asbestos Rope) (ii) Tighten up flange bolts equally.

P.T.O.

Appendix 'A' (Contd)

1	2	3	4	5	6
2	Oil burner	Burner stops working	(a) No oil in the tank	-	Refil oil in the tank
			(b) Air pressure very low.	Air pressure is lower than 3 PSI	Never allow air pressure to fail below 5 PSI.
			(c) Firing nozzle chocked.	Due to the presence of sand particles in the oil tank	(1) Use filters while pouring the oil in the tank to keep off any dirt or girt. (ii) Clear nozzle to avoid choking by poking it with suitable pin. (iii) If the nozzle's choking is not cleared, remove nozzle from the burner and clean it thoroughly.
			(d) Burner coil pipe is chocked	Filled with carbon	Clean it with Caustic soda or acid.
3.	Air Pump	Air pump will not work	(a) Leather washer unserviceable.	Leather washer worn out.	Replace leather washer
			(b) Steel seat worn out	Seat worn by sand particles.	Machine the face of the seat 1/16" and refit.
			(c) Spring tension becomes less.	-	Replace spring.
