

DIRECTORATE GENERAL BORDER ROADS
E4 TECH
GENERAL MAINTENANCE INSTRUCTIONS NO. 171
ON
KOMATSU D 155A BULLDOZER

AIM

The aim of this instruction is to guide the user units to maintain / operate the equipment to achieve maximum life to keep the equipment in good mechanical condition.

ACTION BY

USER UNIT :- Carryout regular / periodical maintenance task as laid down.

2. Follow operational instructions.
3. Enter the periodical tasks in log books.

FIELD WORKSHOP :- To check the record of maintenance and lubrication in the log book while carrying out periodical.

2. To keep a watch over the preventive maintenance carried out by the user unit and periodical checking of the equipment for its mechanical condition.
3. Advise user unit in respect of any discrepancy/short coming noticed.

DETAILS

Detailed instructions is enclosed at Appendix 'A'.

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GENERAL :-

A new machine requires careful operation during the first 100 hours to break in the various parts. If a machine is subjected to unreasonably hard use at the initial operation stage, the potential of performance will prematurely deteriorate and the service life will be reduced. A new machine must be operated with care, particularly with regard to the following items :-

- (i) After starting, let the engine idle for 5 minutes to allow proper engine warm-up prior to actual operation.
- (ii) Avoid operation with heavy loads on at high speeds.
- (iii) Sudden starting or acceleration, unnecessarily abrupt braking and sharp turning should be avoided.
- (iv) At the first 250 hours of operation the machine should be maintained in the following manner :-
 - (a) Checking and adjustment of engine valve clearance.
 - (b) Replacement of engine fuel filter element.
 - (c) Replacement of corrosion resistor element.
 - (d) Replacement of engine oil, hydraulic oil, transmission oil, steering clutch oil, and all oil filter element.
 - (v) When replacing oil filter elements, check their interiors for dirt and dust, if heavily collected, check for possible cause before starting operation.

PERIODIC MAINTENANCE

Proper lubrication and maintenance assure trouble free operation and long machine life. Time and money spent for scheduled periodic maintenance will be sufficiently compensated by prolonged machine operation and reduced operation cost.

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PRECAUTIONS :-

- (1) Wear well-fitting helmet, safety shoes and working clothes. When drilling, grinding or hammering, always wear protective goggles.
- (2) Fuel or oil are dangerous substances. Never handle fuel, oil, grease or oily clothes in places where there is any fire or flame.
- (3) When working with other, choose a group leader and work accordingly to his instructions. Do not perform any maintenance beyond the agreed work.
- (4) Do not handle electrical equipment while wearing wet gloves, or in wet places, as this can cause electric shock.
- (5) During maintenance do not allow any unauthorized person to stand near the machine.
- (6) Unless you have special instructions to the contrary maintenance should always be carried out with the engine stopped. If maintenance is carried out with the engine running, there must be two men present; one sitting in the operator's seat and the other one touch any moving part.
- (7) Always remember that the hydraulic oil circuit is under pressure. When feeding or draining the oil or carrying out inspection and maintenance, release the pressure first. To release the hydraulic pressure, lower the blade and ripper to the ground and stop the engine; move the control levers to each position two or three times and then slowly loosen the oil filter cap.
- (8) When checking or changing the oil, do it in a place free of dust, and prevent any dirt from getting into the oil.
- (9) Before draining the oil, warm up it to a temperature to 30 to 40°C.
- (10) Always use the grades of grease and oil recommended. Choose the viscosity specified for the ambient temperature.
- (11) When changing the oil or filter, check the drained oil and filter for any signs of excessive metal particles or other foreign materials.

MAINTENANCE SCHEDULE BEFORE STARTING

1. Check oil and water for leak.
2. Check and tighten nuts and bolts.
3. Check and tight electric connections.
4. Check level of coolant, engine oil and fuel and fuel and fill up if required.

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5. Check level of oil in transmission, steering clutch and torque converter and fill up if required.
6. Drain sediments from fuel tank.
7. Check for proper travel of steering lever and brake pedal.
8. Check dust indicator.

EVERY 50 HOURS SERVICE

1. Drain sediment from fuel filter
2. Clean fuel feed pump strainer.

EVERY 250 HOURS SERVICE

1. For new machine, change all oils, replace all filter elements and check engine valve clearance at first 250 hours service.
2. Check and correct oil levels in final drive case and hydraulic tank.
3. Grease each point of the following assys :-
 - (a) Fan pully - one point
 - (b) Tension - one point
 - (c) Tension pully bracker - one point
 - (d) Brace screw - two points (for angle dozer)
 - (e) Cylinder support shaft - 4 points
 - (f) Cylinder ball joint - 2 points
 - (g) Cylinder support 40 Kgs - 4 points
 - (h) Brace joint - 2 points.
4. Clean water pump drain hole.
5. Check and clean fuel strainer.
6. Clean crank case breather element.
7. Change engine oil.
8. Check tension of alternator drive belt.
9. Replace fuel flow filter cartridge.
10. Replace transmission and steering oil filter element.
11. Check electrolyte level in battery.
12. Check and re tight track shoe bolt.

NOTE :- Apply the maintenance for every 50 Hrs and 250 hrs at the same time.

1. Replace fuel filter cartridge
2. Replace by pass filter element
3. Replace corrosion resister cartridge
4. Clean breather
5. Drain and refill PTO case oil for alternator.

EVERY 1000 HOURS SERVICE

NOTE :- Apply the maintenance for every 50, 250 and 500 hrs at the same time.

1. Change oil in the following assys :-

- (a) Transmission
- (b) Steering Clutch
- (c) Torque Converter
- (d) Final drive case
- (e) Hydraulic tank

2. Apply grease to the followings :-

- | | | |
|---------------------------------|---|----------|
| (a) Diagonal brace | - | 2 points |
| (b) Universal joint | - | 2 points |
| (c) Torque converter coupling | - | 1 point |
| (d) Idler adjusting rod | - | 2 points |
| (e) Torque converter main shaft | - | 1 point. |

3. Check and clean radiator fins.
4. Clean steering clutch and transmission case strainer
5. Replace hydraulic oil filter element
6. Clean torque converter case strainer.
7. Check lubricating condition in the under carriage components.
8. Check and retight turbo charger mounting bolts.
9. Check rotating condition turbo charger rotor impeller.
10. Check turbo charger rotor for any play.

EVERY 2000 HOURS SERVICE

NOTE :- Apply the maintenance for every 50, 250, 500 and 1000 hrs at the same time.

1. Carry out greasing to the followings assys :-

- | | | | |
|-----|----------------------------------|---|-----------|
| (a) | Decelerator pedal shaft | - | 2 points |
| (b) | Equalizer bar shaft | - | 1 point |
| (c) | Gear shift lever shaft | - | 3 points. |
| (d) | Steering control lever shaft | - | 1 point |
| (e) | Brake pedal lever shaft | - | 6 points |
| (f) | Fuel control lever shaft | - | 4 points |
| (g) | Compression release lever shaft- | | 4 points |
| (h) | Blade control lever shaft | - | 7 points. |

2. Check alternator and starting motor

3. Clean engine valve clearance

4. Check and adjust turbo charger

EVERY 3000 HOURS SPECIAL SERVICE

1. Clean oil cooler.

WHEN REQUIRED

1. Check track tension.

2. Change coolant and clean cooling system.

3. Clean or replace air cleaner element.