GSC30D Mini Crawler Crane

Maintenance Manual

GLT Transglobal Machinery Inc.

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C a t a l o g

Crane maintenance

1. Running-in for maintenance

New or overhauled machines require a break-in period (including test runs and initial lifting) to prevent premature parts wear and maximize the machine's operational lifespan.

(1) The preparation before run.

1) Clean the surface of the crane.

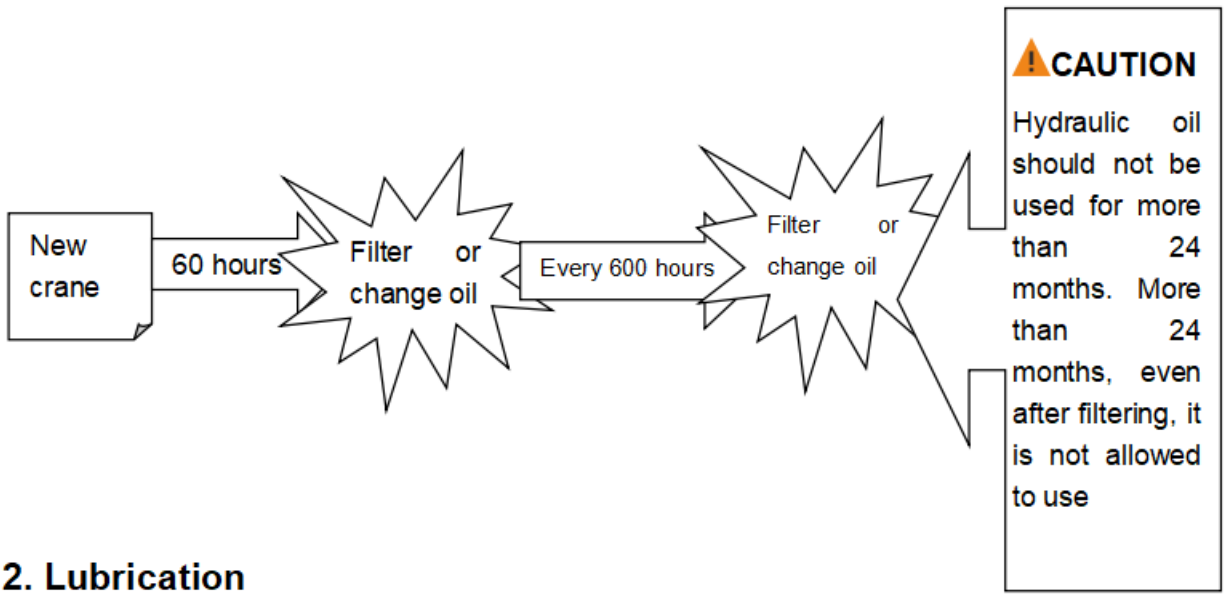
2) Check and tighten bolts and nuts.

3) Apply lubricants to all required points according to specifications.

4) Fill up the engine tank and the hydraulic tank.

CAUTION： Hydraulic oil adopts ISO VG 46 Anti-Wear Hydraulic Oil [The hydraulic oil in a new machine must be initially changed after the first 60 hours of operation.] After normal operation, it should be replaced or filtered once every 600 hours. The maximum life of hydraulic oil is two years. The hydraulic oil is added until the oil gauge is full, about 80L (approx. 21.1 gal)..

Hydraulic oil change method: first release the old oil, clean the fuel tank with kerosene or pure chemical cleaning agent, and then dry it with new hydraulic oil. After cleaning, release the cleaning oil and add new oil.



2. Lubrication

Lubrication is an important measure, it's function is to ensure the normal operation of the machine, extend the mechanical life, improve efficiency and ensure the safety of operate. Maintainers should be fully aware of the importance of equipment

lubrication, always check the conditions of lubrication about the motor point and filling lubricants (grease) to the lubrication point on a regular. Lubrication areas: working wheel and bearing in the winch drum bearing, hook pulley, fixed pulley, and other parts of rolling bearings, and other flexible pins in the operating system, wire rope.

(1) Keep lubricants (grease) clean;

(2)Adopt an appropriate lubricant (grease) or lubricate in required time (see the standard tables of lubrication);

(3) Add the grease by pressure(oil gun or oil pump, screw-cap-style oil cups), so that push the grease on the friction surface to avoid that less grease arrive the friction by wiping;

(4) For rotating parts without dedicated grease fittings, apply a few drops of light lubricating oil to the clearance gaps regularly to reduce friction and prevent rust.

(5) The rope must be lubricated on time and correctly. Clean the old oil with a rag soaked in kerosene before lubrication. ⚠**WARNING**:DO NOT use wire brushes or other sharp tools to clean the wire rope. The use of highly corrosive or acidic lubricants is strictly prohibited.

3. Daily maintenance

After work, or operating, operator should do:

(1) Test no-load, check the function of various mechanisms whether is normal, or exist abnormal noise.

(2) ⚠**WARNING**：Check the trip switch is complete and reliable.

(3) Check the rope on the winch drum and the pulley whether wound normal or not, whether exist the phenomena such as off slot, string slot, knot, twist and so on.

(4) Check the steel wire rope whether is wear or not, or exist broken wires, check the lubrication status of the steel wire rope.

(5) Clear any debris or obstacles from the crawler tracks.

(6) Ensure the hook is securely fastened, rotating parts move freely, and there are no signs of cracks or peeling. Verify that the hook nut's retaining/anti-loosening device is intact.

The high degree of wear on the dangerous section of the hook is no more than 5% of the original.

⚠**WARNING**：Replace the hook immediately if wear on any dangerous section exceeds 5% of its original size , or if there are signs of fatigue cracks.

(7) Check the device that prevent the rope slide from the pulley groove, the casing is intact, and there are no cracks in the pulleys, no defect on the rim.

(8) Check the fastening between the metal structure and the transmission parts.
(9) There are protective covers on the exposed moving parts that may hurt people.
(10) Clean the crane regularly, and clean it weekly completely.

4. 3TNV74 diesel engine maintenance

○: check ◇ replace ●Contact a Yanmar Dealer or Distributor

System	inspection items	Daily	maintenance period						
			Every 50 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 1500 hours	Every 2000 hours	Every 3000 hours
Cooling system	Check and replenish engine coolant	○							
	Check and clean radiator fins		○						
	Check and adjust cooling fan V-belt		○ the first time	○ the second and after					
	Drain, flush and refill the cooling system with new coolant							◇ or every two years, whichever comes first	
cylinder head	Adjust intake/exhaust valve clearance					●			
	Lap Inlet/Exhaust Seats (if required)							●	
Electrical Equipment	check indicator	○							
	check battery		○						
engine oil	check engine oil level	○							
	Drain and fill engine oil			◇ *1	◇ or				

	Replacing the Engine Oil Filter				every year *2				
engine speed control	Check and adjust governor lever and engine speed control	○		○					
Emission Control Guarantee	Inspect, clean and test fuel injectors if required						●		
	Check turbocharger (clean blower if necessary								●
	Inspect, clean and test the EGR valve								●
	Clean the EGR lead valve								●
	Clean the EGR cooler (clean enough to open the water/air channels)						●		
	Check crankcase ventilation system						●		
fuel	Check and top up fuel tank level	○							
	Drain the fuel tank			○					
	Drain fuel fill / water separator		○						
	Check fuel filter / water separator	○							
	Clean fuel filter / water separator				○				
	Replace fuel filter				◇				
hose	Replace fuel system and cooling system hoses							◇ or every two years	

intake and exhaust	Clean or replace air filter element			○	◇				
Complete engine	Daily comprehensive visual inspection	○							

*1: Only for IDI models.

*2: DI model only (varies according to demand or different oil capacity)

If the engine is fitted with a shallow oil sump, whether fitted or not, the service interval shall be every 250 hours. NOTE: These procedures are normal repairs at the owner's expense.

(1) Use in dusty places, extra maintenance.

(2) Unless the user has proper tools and maintenance capabilities, these items should be maintained by service shops authorized by Yanmar Engine, see Yanmar Engine Maintenance Manual.

(3) For engines used for commercial purposes, record the running time in order to determine the maintenance time.

5. First grade technical maintenance

Inspect and maintain the crane once a month by the maintainer, except the contents about the routine maintenance, there also include:

(1) Check the status of the fixed pin about abrasion and lubrication.

(2) Check all bolts for looseness or missing hardware.

(3) Check the situation about bolts fastening on the base of the engine and the hydraulic pump. Fasten them one by one.

(4) Check the situation of abrasion about the rope pulley. Lubricate the pulley and the pulley shaft.

(5) Check the situation of the pulley, such as flexible, have or not damage, cracks, pay attention particularly on the situation of abrasion about the fixed pulley.

(6) Verify smooth vehicle operation; ensure there is no abnormal shuddering or jerky movement during start and stop.

(7) Lubricate the various parts of the crane.

6. Secondary technical maintenance

Inspection and maintenance once a year, by maintenance personnel, in addition to monthly inspection content should also include:

(1) Check that the wheels are cleaned of stains and the bearings are lubricated.

(2) Check the main welds of the boom and chassis for open welding and corrosion. The corrosion depth must not exceed 10% of the original plate thickness. Inspect all major load-bearing components for fatigue cracks, ensure all pins and brackets are intact, and check and retighten the boom bolts.

⚠WARNING:

If structural cracking or corrosion exceeding 10% of the original plate thickness is

found, STOP using the crane immediately and contact an authorized dealer for repair.

(3) Check the deformation of the boom.

(4) Clean the oil filter of the hydraulic system to ensure smooth oil passage.

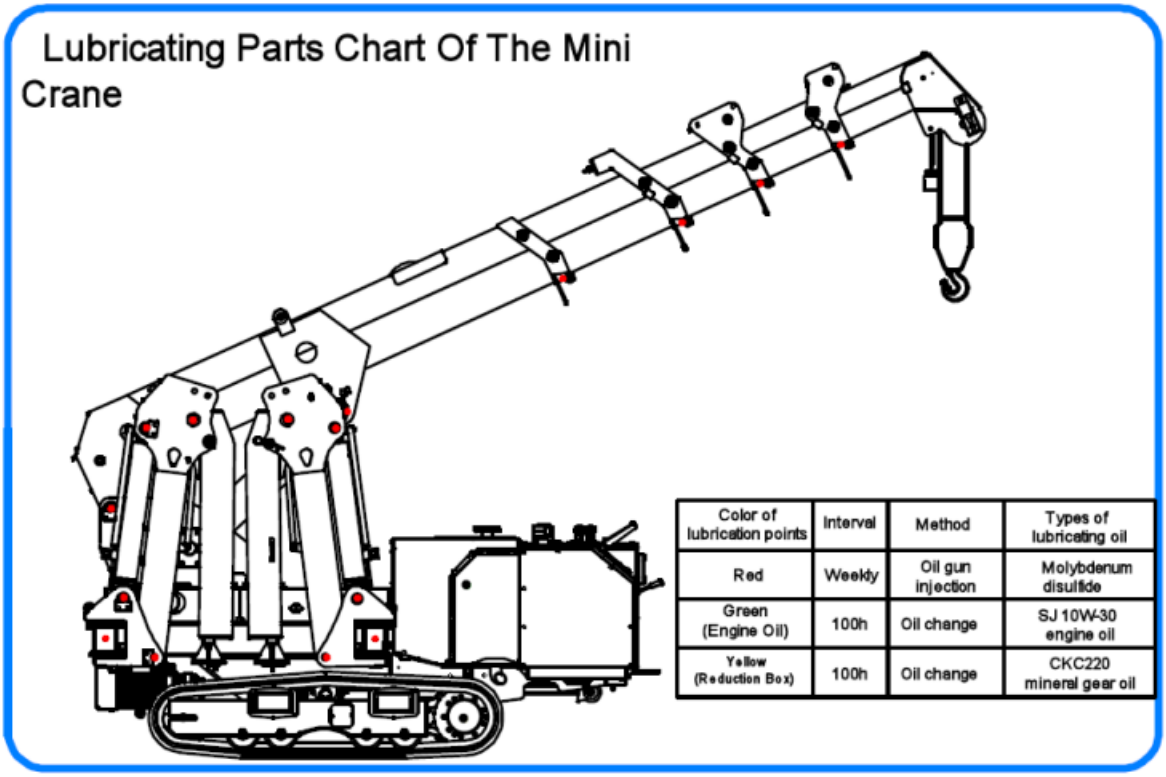
(5) Check the condition of the winch drum, the wear of the winch drum wall should not exceed 20% of the original wall thickness, and the convex peak of the rope groove should not be sharp.

(6) Tighten all the connecting bolts and fastening bolts on the crane.

(7) Check the working condition of the hydraulic cylinder. The hydraulic cylinder should have no retraction, oil leakage and beating.

(8) Remove impurities such as oil sludge in the hydraulic oil tank.

Lubrication Diagram: Schematic diagram of the lubrication position of each component



Color of lubrication points	Interval	Method	Types of lubricating oil
Red	Weekly	Oil gun injection	Molybdenum disulfide
Green (Engine Oil)	100h	Oil change	SJ 10W-30 engine oil
Yellow (Reduction Box)	100h	Oil change	CKC220 mineral gear oil