

Axles

Description

The front and rear axles are both double reduction by bevel set and planetary hub reduction gears, both have limited slip differentials. The front axle incorporates a parking brake.

Steering is available to both axles, depending on the steering mode selected. The axle hubs are steered by the operation of a double acting hydraulic cylinder attached to the axle.

Front axle

Removal

1. Park the machine on firm level ground and set the wheels straight ahead, in line with the chassis. Fit chocks to the front and rear of the rear wheels.
2. Raise the boom and fit the boom safety stop.
3. Stop the engine and apply the parking brake.
4. Refer to page 1.53 and dump hydraulic pressure from the brake systems, then disconnect the battery.

CAUTION



Support the drive shaft clear of the axle to make sure it is not damaged during axle removal.

5. Disconnect the drive shaft from the axle flange and support clear of axle.
6. Disconnect the inductive magnetic steering sensor electrical lead.
7. Slacken front axle wheel nuts.
8. Support the chassis at a sufficient height to allow the wheels to be removed.
9. Support axle with a fork-lift or trolley jacks.
10. Remove front wheels.
11. Disconnect brake pipes (2) and (3) from left and right brake unit, fit blanks to open pipes and brake unit connections.

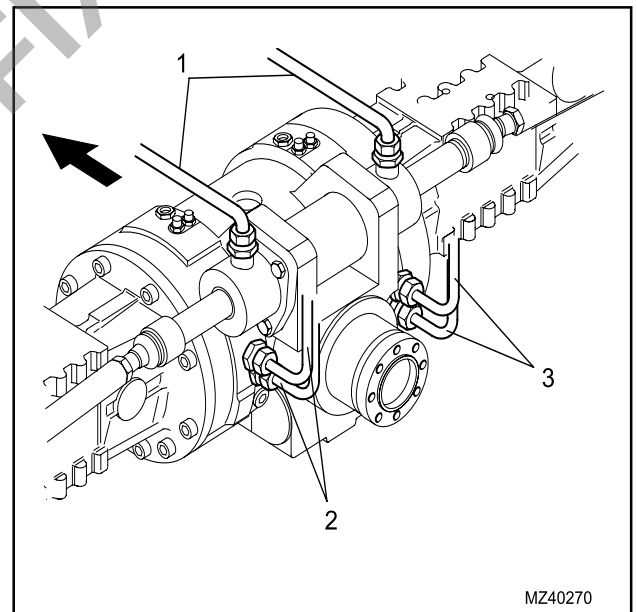
12. Disconnect steering pipes (1) from steering cylinder, fit blanks to open pipes and steering cylinder connections.

WARNING



*Secure the axle to the fork-lift/trolley jacks to prevent axle tipping on removal.
The axle weighs 443 kg, take care when removing and transporting.*

13. Remove the eight attachment bolts/nuts securing axle to chassis (four each side) and remove support plates.
14. Lower axle on fork-lift/trolley jacks.
15. Move axle clear of machine and place on a suitable support.



1. Steering pipes
2. Left brake pipes
3. Right brake pipes

Installation

1. Installation is the reverse of the removal procedure.
2. Torque load components as follows:

Axle to chassis nuts	640 Nm (472 lbf ft.)
Drive shaft bolts	70-85 Nm (52-63 lbf ft.)
Wheel nuts	300 Nm (221 lbf ft.).
3. Check axle and wheel hub oil levels are correct.
4. When the axle has been dismantled and reassembled, refer to the Axle Assembly section and test the differential operation.
5. Refer to Page 1.52 and bleed then check brake function.
6. Start engine, make sure front wheel steering is selected and operate steering through full range several times to bleed air from steering system.
7. Test machine operation.

Troubleshooting

Operating problems

The following information is given as a guide to Operating problems and possible causes.

Problems	Possible Causes										
	1	2	3	4	5	6	7	8	9	10	11
Wheel vibration; front tyre resistance; halfshaft breakage	*	*	*		*						*
Steering is difficult; vehicle goes straight while it is turning	*	*	*	*							*
No differential action; jamming while steering	*			*	*						*
Excessive transmission noise	*	*	*	*	*		*		*		*
Uneven tyre wear	*	*	*	*	*	*	*				*
Friction noise	*			*	*			*	*	*	*
Vibration during forward drive, intermittent noise	*	*	*		*						*

Key to Operating problems table

1. Incorrect installation/defective axle

Correct installation or repair or replace the differential in case it does not survive any one of the test phases.

2. Overloading/incorrect weight distribution

Remove excessive weight and redistribute load, following instructions related to the machine.

3. Different rotation radius of the tyres

If one tyre has a smaller radius, it will cause partial wheel slipping when force is applied. The other tyre with larger radius will have to support all the work. Replace the tyre or adjust pressure to have same radius on both tyres.

4. Broken halfshaft

It is not advisable to operate the machine with a broken halfshaft. It is acceptable to move the machine (engine off loaded) a few metres only.

5. Bent halfshaft

Replace halfshaft.

6. Blocked differential

Abnormal functioning of the differential or breakage/blockage of command device. Verify assembly and all components.

Machines with wide steering angles may proceed with kicks, have steering difficulty or cause tyre wearing on sharp turns. Reduce the steering angle to minimum and decelerate the machine when the steering begins to kick.

7. Incorrect wheel adjustment

Check group integrity and wheel side bearings. Adjust accordingly.

8. Spoiled or worn out axle parts

Check the condition of the ring gear, pinion gear, bearings etc. Replace components as necessary.

9. Contamination in the axle box or incorrect assembly of parts

Look for foreign particles. Check the assembly of the axle components.

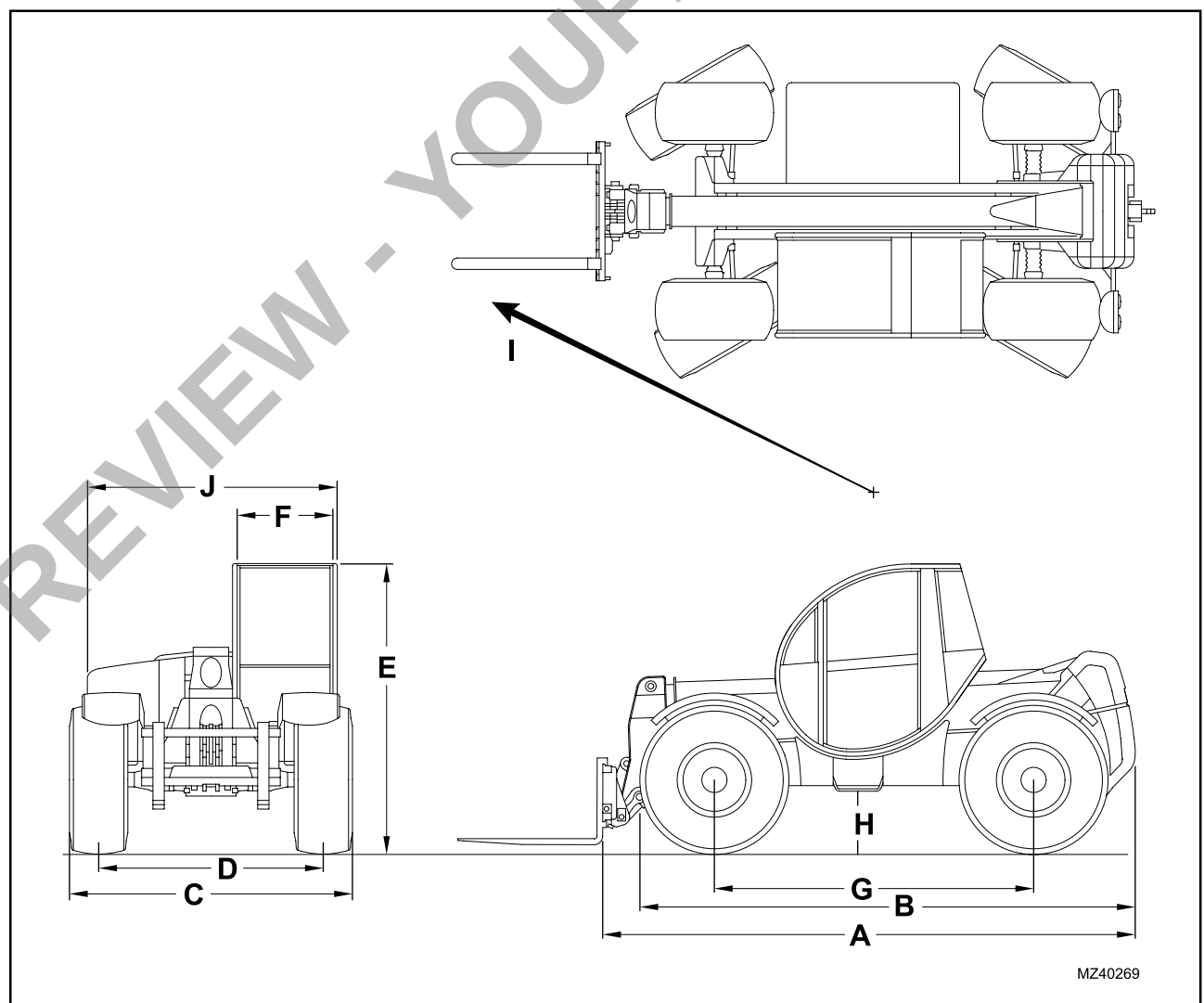
10. Incorrect adjustment of bevel gear set: Parts of the transmission worn out

Replace or adjust as required (transmission gears, U joints etc.).

11. Incorrect use of the product

Refer to the machine manufactures instructions.

		K50	K60	K70
Dimensions				
A Length to front of carriage	mm	4705	4705	4705
B Length front to rear wheels	mm	3876 (20 in. tyres)	4079	4079
C Overall width	mm	2300	2300	2300
D Track width	mm	1920	1920	1920
E Height over cab on std tyres	mm	2380 (20 in. tyres)	2450	2450
F Interior cab width	mm	900	900	900
G Wheelbase	mm	2800	2800	2800
H Ground clearance	mm	410 (20 in. tyres)	446	446
I Turning radius on std tyres	mm	3450	3450	3450
J Overall bodywork width	mm	2235	2235	2235
Weight (unladen)	kg	6963	7605	7800



REPAIR MANUAL

AXLES AND STEERING

ENGINE

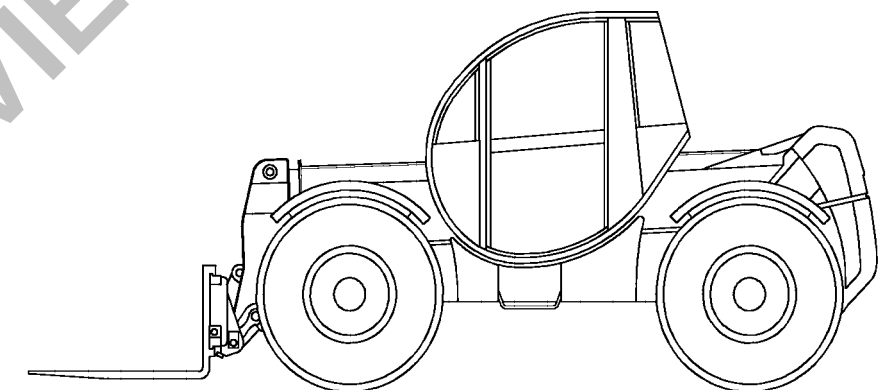
TRANSMISSION

BOOM

CHASSIS

TECHNICAL DATA

CLAAS



LH70010

CLAAS TARGO K50 K60 K70

INTRODUCTION

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SAFETY WARNINGS

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SAFETY WARNINGS

- WARNING**  Always wear correct fitting protective clothing. Loose or baggy clothing can be extremely dangerous when operating or maintaining a machine.
- WARNING**  Where possible, only work on or close to engines or machinery when they are stopped. If this is not practical, remember to keep tools, test equipment and all parts of your body well away from moving parts.
- WARNING**  Avoid contact with exhaust pipes and exhaust manifolds when the engine is running; these can be very hot.
- WARNING**  Many liquids used on this machine are harmful if taken internally or splashed into the eyes. In the event of accidentally swallowing oil, diesel fuel, anti-freeze, battery acid etc., **DO NOT** induce vomiting, but **OBTAIN QUALIFIED MEDICAL ASSISTANCE IMMEDIATELY.**
- WARNING**  Always obtain advice before mixing oils; some are incompatible.
- WARNING**  Never run an engine in an enclosed space unless an exhaust extraction system is used.
- WARNING**  Always disconnect battery cables before working on the electrical system to prevent injury caused by electric shock.
- WARNING**  When it is necessary to work on the electrical system with power on, for fault diagnosis, always have a safety man in attendance
- WARNING**  Any dust found on the machine or produced during work on the machine should be removed by extraction, not by blowing. Dust waste should be dampened, placed in a sealed container and marked for safe disposal.
- WARNING**  Always dump pressure from the hydraulic system before carrying out any maintenance or adjustment (**refer to Hydraulic Repair Manual**).
- WARNING**  Never leave the machine unattended with pressure in the system.
- WARNING**  Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. If hydraulic fluid penetrates your skin **OBTAIN QUALIFIED MEDICAL ASSISTANCE IMMEDIATELY.**
- WARNING**  Never allow unqualified personnel to attempt to remove or replace any part of the machine.
- WARNING**  Always use the correct lifting equipment to remove large or heavy components.
- WARNING**  Never attempt to lift or hold up the machine using the lash-down points.

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ENGINE

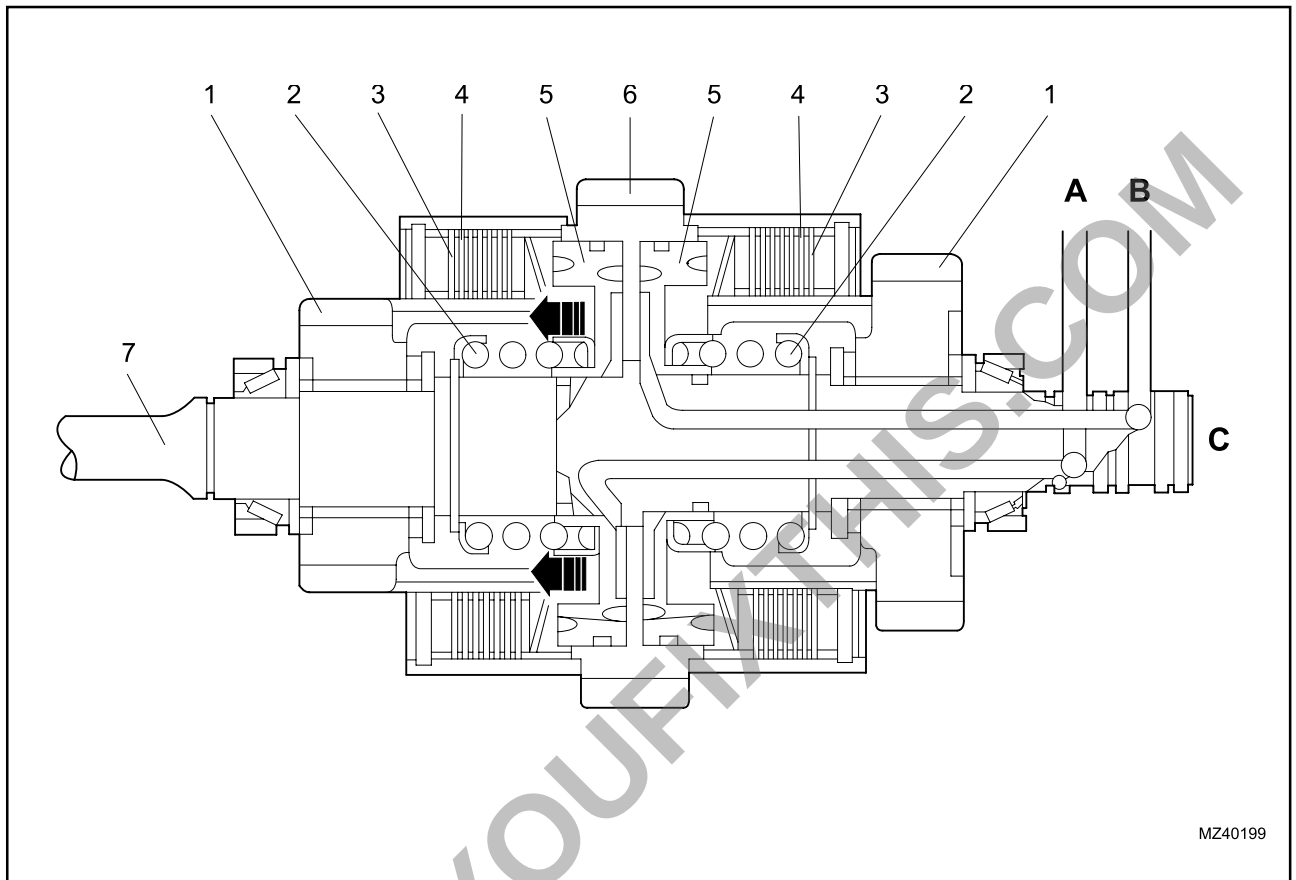
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Transmission clutches



Position	Function	Remarks
1	Driven gear wheel	Transmission input to the clutch assembly
2	Pressure spring	Fitted outside piston to return piston to the disengaged position
3	Thrust washers	Fitted between the clutch plates to transmit drive
4	Clutch discs	Transmits the drive to the clutch packs
5	Piston	With hydraulic oil pressure fed in behind, compresses the clutch packs
6	Driven gear wheel	Transmits drive to the clutch packs
7	Drive shaft	The drive shaft is only connected to gear 6 and outer basket
A	Clutch oil supply	Oil is directed behind the left piston to engage that clutch
B	Clutch oil supply	Oil is directed behind the right piston to engage that clutch
C	Lubricant oil supply	Lubricant oil is used to cool the clutch parts during engagement and to lubricate during disengagement



Figure 145
Remove bearings and spacer from clutch gear.



Figure 148
Remove end plate.



Figure 146
Remove outer thrust washer, thrust bearing and inner thrust washer.



Figure 149
Remove clutch discs.



Figure 147
Remove end plate retainer ring.



Figure 150
Compress disc springs and remove retainer ring.

TROUBLESHOOTING

The following information is given as a guide to isolating and determining the specific problem area in a transmission that is not functioning correctly.

When troubleshooting a transmission problem, it should be kept in mind that the transmission is only the central unit of a group of related powertrain components. Proper operation depends on the condition and correct functioning of the other components of the group. Therefore, to properly diagnose a suspected problem in the transmission, it is necessary to consider the transmission fluid, charging pump, torque converter, transmission assembly, oil cooler, filter, connecting lines and controls, including the engine, as a complete system.

By analysing the principles of operation together with the information in this section, it should be possible to identify and correct any malfunction that may occur in the system.

Transmission

The T1200 (powershift with torque converter transmission) troubles fall into three general categories:

1. Mechanical problems.
2. Hydraulic problems.
3. Electrical problems.

In addition to the mechanical and electrical components, all of which must be serviceable and functioning correctly, the correct functioning of the hydraulic circuit is most important. Transmission fluid is the life blood of the transmission. It must be supplied in an adequate quantity and delivered to the system at the correct pressures to ensure converter operation, to engage and hold the clutches from slipping and to cool and lubricate the working components.

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