Instruction Manual

TC250 Tree Cutter

ULRICH
ATTACHMENTS LTD



Loader Attachments & Winches by Design

CE

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Foreword

Please read the handbook carefully before operating the equipment. It is important that all safety and maintenance checks are carried out regularly to ensure 'trouble free' running of your equipment.

This manual describes the options and levels available throughout this model range and, therefore, some of the items covered may not apply to your equipment. If you have any doubt of the applicability of this manual to your particular equipment, we will be only too pleased to assist you.

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FOR SPARES ORDERS STATE:

1 Serial Number
2 Part number and description
3 Quantity required
4 Destination
5 Method of despatch

IMPORTANT NOTE:

Whilst every effort is made to keep this book accurate and up to date the Company does not accept responsibility for errors therein.

PREFACE

The Ulrich Tree Cutter is designed to allow the attaching of various types of equipment to the unit.

The Tree Cutter incorporates a hydraulically operated locking pin to secure it to the equipment.

EQUIPMENT SERIAL NUMBERS

See Serial Number Plate for the following information:
- Loader Model No.
- Bucket Model No.
- Bucket Capacity
- Max Material Density
- Date of Manufacture

TECHNICAL DATA

Tree Cutter Model		**TC250**	
Cutting Action			
Max. diameter of cut timber	Hardwood Softwood	200mm 250mm	8” 10”
Hydraulic requirements	Pressure Flow	250 BAR 60 l/min	
Cylinder force - full bore		25650Kg	56430lb
Maximum force available to cut the timber		20338Kg	44744lb
Clamping Action			
Maximum opening		750mm	29.5”
Hydraulic requirements	Pressure	250 BAR	
	Flow	60 l/min	
Cylinder force - full bore		7950Kg	17490lb
Swivel Action			
Swivel Angle		+/- 45°	
Hydraulic requirements	Pressure Flow	100 BAR 20 l/min	
Timber density		760Kg/m^3	
Max. length of cut timber		2000mm	

INSTALLATION SAFETY

It is important that both industrial and government specifications relating to the following safety instructions are adhered to at all times.

1. Observe all necessary safety precautions during lifting, fitting and removal of the equipment.
2. The necessary protective clothing (eg. Heavy duty gloves, safety boots, hard hat, goggles etc.) must be worn during the installation of the equipment.
3. Installation of the equipment must only be carried out by an experienced qualified engineer.
4. Sufficient access at the installation areas must be provided for loading and moving the quick hitch assembly.
5. Always use the proper lifting equipment when manoeuvring the Tree Cutter.

INSTALLATION

These instructions must be carried out in conjunction with the information listed in the **Installation Safety and Maintenance Safety.**

GENERAL

The Tree Cutter is mounted onto a quick hitch attachment already fitted to the Excavator Dipper arm. Operations of the controls are described in the vehicle handbook.

To Fit Tree Cutter - Quick Hitch Attachment

1. Position the quick hitch above the Tree Cutter and engage the attachment hooks on the Tree Cutter.
2. Engage the quick hitch locking pins.

Ensure that the locking pins are fully engaged.

3. Connect the jumper hoses and ensure leak free operation of the hydraulic cylinders.

To Remove Tree Cutter - Quick Hitch Attachment

1. Place the Tree Cutter Flat on the ground.
2. Disconnect the jumper hoses.
3. Disengage quick hitch locking pins.

4. Disengage the quick hitch attachment hooks from the Tree Cutter and lift the quick hitch clear of the Tree Cutter.
5. Reverse the vehicle slowly away.

OPERATING INSTRUCTIONS

USER SAFETY

1. Carry out all actions listed in Routine Maintenance and report any faults immediately to a superior.
2. Operators must be thoroughly trained in the safe operating procedures of the Ulrich Tree Cutter as described in this publication.
3. Personnel must not be transported on the Tree Cutter.
4. Ensure that the fingers and other parts of the hand are not trapped when fitting the Tree Cutter.
5. Ensure that all personnel stand well clear during working operations with the Tree Cutter to eliminate any risk of personnel being injured by the Tree Cutter or by falling timber.
6. Do not use the Tree Cutter if it is not properly secured to the quick hitch.
7. Do not overload the Tree Cutter.
8. The loadings on the Tree Cutter blade and clamp assemblies should not exceed those shown on the Technical Data page.

OPERATING INSTRUCTIONS

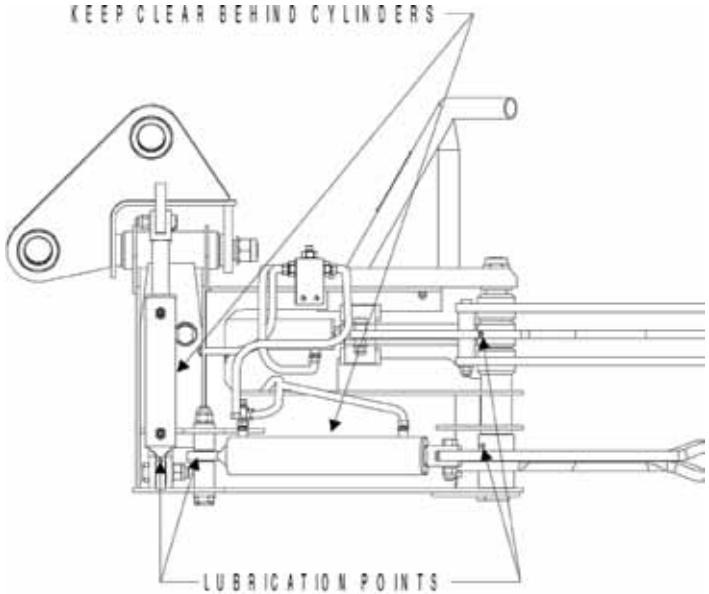
General operation of the Excavator fitted with the Ulrich Tree Cutter is the same as when the standard bucket is fitted and these instructions in the Excavator operators manual should be adhered to at all times.

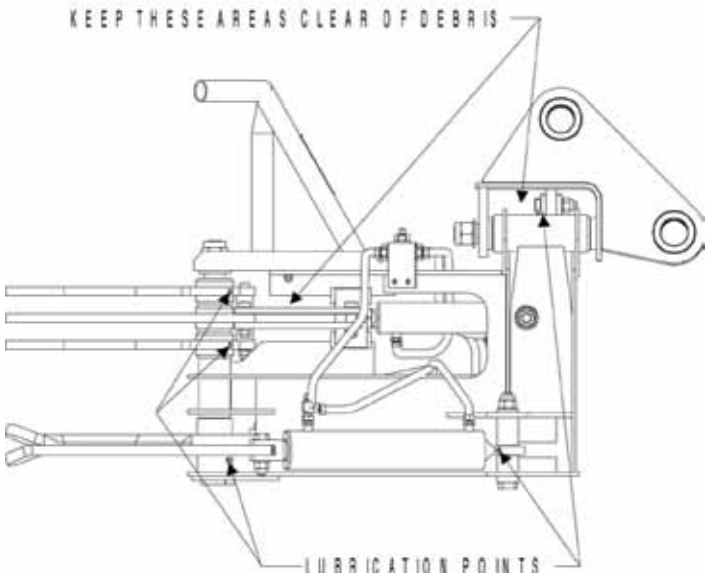
Tree Cutter Operation

1. Fully open the cutter blade and clamp assemblies.
2. Position the trunk to be cut in between the cutter and clamp blades and position it against the support frame.
3. If necessary adjust the tree cutter angle so that it is in line with the trunk.
4. Apply hydraulic pressure to the clamp cylinders until the trunk is firmly grasped. Continue to apply pressure to operate the cutting blades.
5. With the trunk cut through keep the trunk clamped in the tree cutter and transport to the area where cut timber is to be deposited.

6. Tilt the Tree Cutter forward and open the clamp blades to release the cut timber from the Tree Cutter.
7. Do not push the tree cutter into the ground using the excavators cylinders.
8. Do not cut timber of a size and weight that may cause the excavator to become unstable. Refer to the Technical Data page in this manual.

Note if the ground is not level this will have an impact on the capacity.





HYDRAULIC OIL AND LUBRICANTS

Recommended hydraulic oil - BP Energol, HLP 32 or direct equivalent.
Recommended multi purpose grease - BP Energol L2 or direct equivalent.

MAINTENANCE SAFETY

1. Repairs, servicing and maintenance must be carried out by qualified and/or specialised engineers.
2. All repairs, service and maintenance operations must be carried out on firm level ground.
3. Check for overhead height restrictions when working undercover.
4. Always remove vehicle ignition and control panel keys before carrying out repair, service and maintenance tasks.
5. Do not change pressure relief valve settings.
6. Do not remove or restrict the operation of any of the installed safety switches.
7. Allow the hydraulic oil to cool before attempting repairs.
8. Do not retighten leaky seals, nuts, etc. while the hydraulic system is under pressure.
9. Do not use hands to suppress a hydraulic oil leak.
10. If authorised arc welding is to be carried out on the Tree Cutter, the alternator and battery MUST be disconnected or remove the Tree Cutter from the excavator. When brazing, soldering or welding it is essential that any excessive heat course is kept away from the vicinity of the alternator, road springs, any nylon air piping and hydraulic equipment.
11. Before working on the machine ensure that it is grounded and secure.

MAINTENANCE SCHEDULE

Observe all user and maintenance safety instructions.

These safety instructions must be carried out in conjunction with the information listed in the User Safety.

Daily

1. Visually check the hydraulic system for leaks. Immediately report any leaks to a superior for subsequent investigation and repair.
2. Clean all quick release couplings prior to engagement with vehicle couplings.
3. Visually check condition of hydraulic cylinders for signs of leaks or damage. Immediately report any leaks or damage to a superior for subsequent investigation and repair.
4. Visually check condition of all pivot pins for signs of excessive wear and damage. Immediately report any defect to a superior for subsequent investigation and repair.

Do not use the Tree Cutter if pivot pins are defective.

5. Check condition of cutting blades and clamp arms for signs of excessive wear and damage and renew as necessary. Check tightness of all retaining bolts.
6. Apply grease to all pressurised grease points, as indicated in the lubrication diagram, using recommended grease.
7. Remove any material that may have become lodged between the cylinders and the main frame assembly.

Disregard may cause damage to the hydraulic cylinders or clamp/cutter assemblies.

8. Check all operational sequences to ensure that they function correctly. Any defects must be reported to a superior for further investigation.

Do not operate Tree Cutter if the operational sequences are defective.

Weekly

All daily tasks and the following:-

9. Wipe with a clean cloth all exposed piston rods.

Ensure no third party has access to the controls when undertaking this task.

Monthly

All weekly tasks and the following:-

10. Visually check Tree Cutter Assembly for cracks or distortion. (Qualified Engineer).



Do not use Tree Cutter if any part of the assembly exhibits any cracks or excessive distortion.

Torque chart (not to be used on safety critical items)

Recommended tightening torques and approximate induced bolt tensions unless otherwise stated on fitting instructions.

8.8 Quality

NOMINAL BOLT SIZE	BOLT TENSION Kg		'U' TORQUES				'P' TORQUES			
	Course	Fine	Course		Fine		Course		Fine	
			Nm	lbf ft	Nm	lbf ft	Nm	lbf ft	Nm	lbf ft
M6	1029	-	10.6	7.85	-	-	12.7	9.37	-	-
M7	1480	-	17.9	13.2	-	-	21.5	15.9	-	-
M8	1874	2007	25.8	19.1	27.7	20.4	31.0	22.9	33.2	24.5
M10	2970	3133	51.2	37.8	54.0	39.8	61.4	45.3	64.8	47.8
M12	4316	4716	89.3	65.9	97.6	71.9	107.2	79.1	117.1	86.4
M14	5888	6400	142.1	104.8	154.5	113.9	170.5	125.7	185.4	136.7
M16	8038	8550	221.7	163.5	235.9	173.9	266	196.2	283.1	208.8
M18	9830	11059	305.1	225	343.2	253.1	366.1	270.0	411.8	303.7
M20	12544	13926	432.5	319.0	480.2	354.1	519.0	382.8	576.2	425.0
M22	15514	17050	588.4	433.9	646.7	476.9	706.1	520.7	776.0	572.3
M24	18074	19661	747.8	551.5	813.5	599.9	897.4	661.8	976.2	719.9
M27	23501	25395	1093.9	806.8	1182.1	871.8	1312.7	968.1	1418.5	1046.2

41 Tons Per In^2 Yield

NOMINAL BOLT SIZE	BOLT TENSION Lb		'U' TORQUES lbf ft		'P' TORQUES lbf ft	
	UNC	UNF	UNC	UNF	UNC	UNF
1/4"	2350	2610	8.35	9.67	10.0	11.6
5/16"	3875	4160	18.0	19.3	21.6	23.2
3/8"	5720	6165	31.2	33.8	37.4	40.6
7/16"	7850	8255	50.5	54.1	60.7	64.9
1/2"	10175	11165	74.7	81.7	89.7	98.1
9/16"	13440	14550	110.8	119.5	133	143.4
5/8"	16680	17855	152.5	163.5	183.0	196.2
3/4"	24680	25865	274.7	288.8	329.6	346.5
7/8"	34015	35400	436.0	458.8	523.2	550.6

Safe working strength taken as 80% of yield strength.

10.9 Quality

NOMINAL BOLT SIZE	BOLT TENSION Kg		'U' TORQUES			
	Course	Fine	Course		Fine	
			Nm	lbf ft	Nm	lbf ft
M6	1447	-	15.0	11.0	-	-
M7	2081	-	25.1	18.5	-	-
M8	2635	2822	36.3	26.8	38.9	28.7
M10	4176	4406	72.0	53.1	76.0	56.0
M12	6070	6631	125.7	92.7	137.1	101.1
M14	8280	9000	199.5	147.2	217.1	160.1
M16	11304	12024	312.0	230.1	331.4	244.4
M18	13824	15552	429.0	316.4	482.6	355.9
M20	17640	19584	609.1	449.2	675.1	497.9
M22	21816	23976	827.1	610.0	909.8	671.0
M24	25416	27648	1051.3	775.3	1143.6	843.4
M27	33048	35712	1538.3	1134.5	1662.2	1225.9

'U' TORQUES - 'Self Colour' unlubricated bolts and zinc plated bolts into unplated holes and nuts for normal applications.

'P' TORQUES - Zinc plated bolts into zinc plated holes and nuts for normal applications.

CAPSCREWS - These should follow 10:9 quality torques unless otherwise specified.

ALUMINIUM - For bolts through Aluminium or into tapped holes in Aluminium the torques will be given in the fitting instructions.

IF IN DOUBT ABOUT ANY OF THE ABOVE, CONSULT THE ULRICH ATTACHMENTS LIMITED ENGINEERING DEPARTMENT.

CONVERSIONS : Nm into lbf ft – Multiply by 0.7375

Kgf m into lbf ft – Multiply by 7.246

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