



OPERATOR'S MANUAL

T300-1

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CONSTRUCTION AND INDUSTRIAL EQUIPMENT PRODUCT SAFETY

It is the responsibility of the owner of the construction and industrial equipment products to be knowledgeable about federal, state and local regulations that effect the total usage of his equipment, and responsibility to working personal and the public. Since regulations are subject to change, and also differ from one local to another, this manual makes no attempt to provide such information.

Terex Cranes provides appropriate operation and maintenance manuals for various construction and industrial equipment products that it manufactures and sells. In addition, where applicable, appropriate national consensus standards, industry standards and safety related manuals are included with the Terex manuals in the shipment of each product. It is company policy to provide this information for the owner or user of the equipment. It is expected that the owner or user will utilize these manuals and standards to provide the appropriate information and training to those people who are to operate, maintain and supervise the use of equipment in a proper and safe manner. Construction and industrial equipment is designed and manufactured to perform heavy-duty work. Under normal usage, the equipment will wear. For this reason it is

essential that the owner/user establish and perform a periodic inspection of the equipment. The objective of inspection programs is to prevent accidents, reduce downtime and keep the equipment working efficiently. These inspection programs should be designed to discover worn, cracked, broken or deteriorated parts and loose or missing fasteners before they result in a problem.

Proper training and inspection programs are essential to avoiding injury to persons, damage to property and excessive maintenance costs.

Read and understand the manuals provided with this equipment. Assistance is available from the distributors of your Terex product and from the Terex manufacturing facility.



When operating a hydraulic crane, the operator should realize that hydraulic and structural competence, NOT TIPPING LOAD, is often the determinant of lifting capacity.

Therefore, THE OPERATOR MUST BE GUIDED SOLELY BY THE APPROPRIATE MANUFACTURER'S LOAD RATING CHART when considering load weights. The manufacturers rated loads must never be exceeded.

Follow the recommended operating and maintenance procedures and keep your machine operating at MAXIMUM EFFICIENCY. Use the Suggested Crane Periodic Inspection Check List provided. In addition, we STRONGLY URGE that a MAINTENANCE LOG be kept in conjunction with all maintenance performed on the machine.

If you desire any special information regarding the care and operation of the machine, we will gladly furnish it upon request. Because we build

various types of equipment, we ask that you include your machine model and serial number in all correspondence so that we can provide the correct information.

The information, specifications, and illustrations in this publication are based on the information in effect at the time of approval for printing. We reserve the right to make changes at any time without obligation.

SUGGESTED HYDRAULIC CRANE INSPECTION CHECK LIST

This check list is to be used in addition to the information provided in this manual to properly operate and maintain the machine.

ITEMS TO BE INSPECTED & CHECKED	INSPECTION CODE	SATISFACTORY	ADJUST	REPAIR
VISUAL INSPECTION H (Complete Machine)	D			
OVERALL CLEANLINESS	D			
HYDRAULIC SYSTEM (Leaks or Damage)	D			
AIR SYSTEM (Leaks or Damage)	D			
HYDRAULIC FLUID	D			
TRANSMISSION FLUID LEVEL	D			
ENGINE CRANKCASE FLUID LEVEL	D			
FUEL TANK FLUID LEVEL	D			
RADIATOR FLUID LEVEL	D			
MACHINE LUBRICATION	D			
ATTACHMENT PIN BOLTS	D			
MUFFLER/EXHAUST SYSTEM	D			
ALL CONTROL MECHANISMS	D			
INSTRUMENT GAUGES	D			
CLUTCHES & BRAKES	D			
WIRE ROPE, SHEAVES & GUARDS	D			
TWO BLOCK DAMAGE PREVENTION SYSTEM	D			
LOAD SUPPORTING COMPONENTS CONDITION	D			
FIRE EXTINGUISHER	D			
BACKUP ALARM	D			
BOOM ANGLE INDICATOR	D			

ITEMS TO BE INSPECTED & CHECKED	INSPECTION CODE	SATISFACTORY	ADJUST	REPAIR
HEAD/TAIL/BRAKE LIGHTS & 4 - WAY FLASHERS	D			
HORN	D			
CABLE SPOOLING PROPERLY	D			
WEDGE SOCKETS	D			
AXLE FLUID LEVEL	W			
SWING REDUCER FLUID LEVEL	W			
DRIVE SHAFTS & U JOINTS	W			
TIRE & WHEEL CONDITION & INFLATION PRESSURE	W			
AIR REGULATORS	W			
AIR CLEANER ELEMENT	W			
CLUTCH & BRAKE LINKAGE & PINS	W			
WHEEL LUG NUT TORQUE	W			
FAN BELT TENSION	W			
STRUCTURAL MEMBERS & WELDS	W			
BOOM INSPECTION	W			
BATTERIES & STARTING SYSTEM	M			
ALCOHOL EVAPORATOR	M			
SWING BEARING BOLT TORQUE	P			
MACHINERY GUARDS	P			
LOAD CHART & SAFETY WARNINGS	P			

H Inspect OVERALL machine (including carrier) for cracks, weld separation, leaks, damage, vandalism.

INSPECTION CODE INTERVALS

D - DAILY

M - MONTHLY

W - WEEKLY

P - PERIODIC

NOTES:

1. Indicate inspection result by checking in the satisfactory, adjust, or repair boxes provided.
2. When appropriate, enter your diagnosis on back of page for repairs or adjustments made.

NOMENCLATURE

This manual contains instructions and information on the operation, maintenance, lubrication and adjustments of the Rough Terrain Crane. The operator should not attempt to operate the machine before he has gained a thorough

understanding of the material presented in the following pages.

To aid in understanding the contents of this manual, the following terms will always have the meanings given whenever they are used.

1. UPPERSTRUCTURE

The upperstructure weldment, swing mechanism, counterweight, cab.

2. BOOM ATTACHMENT

The telescopic crane boom with hydraulic winch, lift cylinder, hook block assembly, jib arrangement.

3. CARRIER

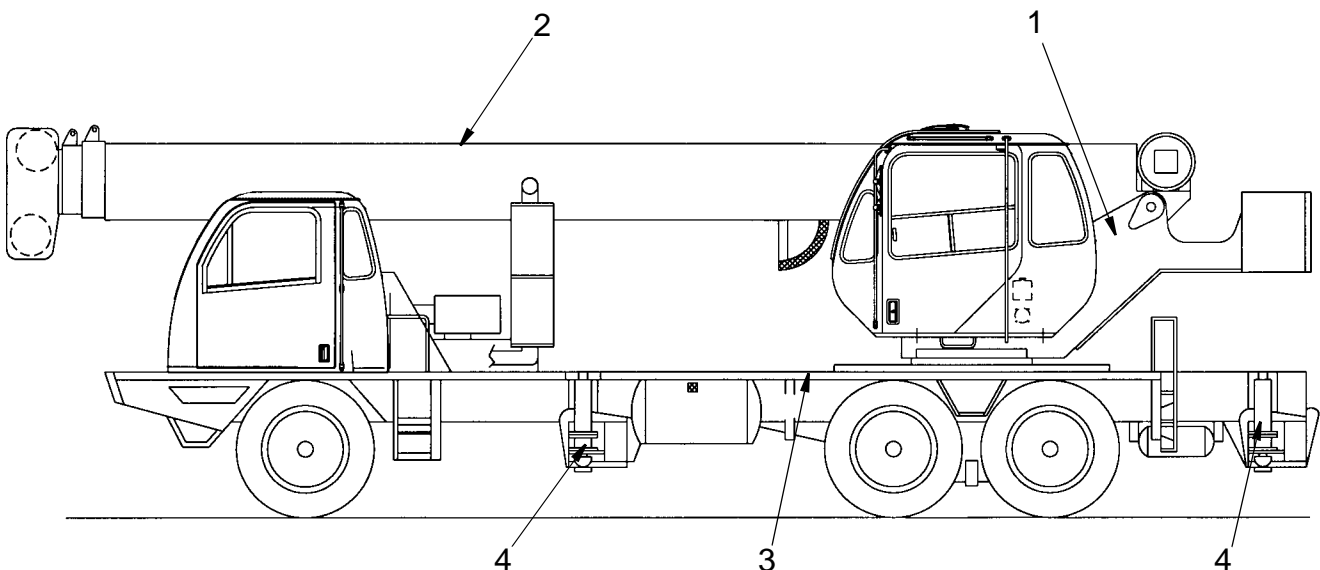
The chassis complete, power unit, swing bearing, transmission, planetary axles, outrigger assemblies.

4. OUTRIGGERS

The beams, cylinders, floats, boxes, hydraulic control system.

RIGHT HAND/LEFT HAND

All references to right or left hand will correspond to the operator's right or left hand when he is facing forward from the operator's seat, with the rear mounted engine to his back.



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SAFETY

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INTRODUCTION

Owners, Users, and Operators:

Terex Cranes appreciates your choice of our machine for your application. Our number one priority is user safety, which is best achieved by our joint efforts. We feel that you make a major contribution to safety if you as the equipment users and operators:

1. **Comply** with OSHA, Federal, State, and Local Regulations.
2. **Read, Understand, and Follow** the instructions in this and other manuals supplied with this machine.
3. **Use Good, Safe Work Practices** in a common sense way.
4. **Only have trained operators** - directed by informed and knowledgeable supervision - running the machine.

NOTE: OSHA prohibits the alteration or modification of this crane without written manufacturers approval. Use only factory approved parts to service or repair this unit.

If there is anything in this manual that is not clear or which you believe should be added, please send your comments to Technical Publications Coordinator, Terex Cranes, 106 12th St SE, Waverly, Iowa 50677; or contact us by telephone at (319) 352-3920.

Thank you!



THIS SYMBOL MEANS YOUR SAFETY IS INVOLVED!
READ, UNDERSTAND, AND FOLLOW ALL DANGER,
WARNING, AND CAUTION DECALS ON YOUR
MACHINE.

INTRODUCTION

Many aspects of crane operation and testing are discussed in standards published by the American National Standards Institute. These Standards are updated on an annual basis with addendas, which are sent by ASME to the original purchasers of the standard. Terex recommends that you purchase and refer to the following standards.

ANSI/ASME B30.5 - Mobile & Locomotive Crane (Latest Version)

These standards can be purchased from:

American Society of Mechanical Engineers
United Engineering Center
345 East 47th Street

SYMBOLS

The symbols below are used to inform the operator of important information concerning the operation of this unit.



DANGER - Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING - Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION - Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



ATTENTION - Indicates a situation which, if not avoided, may result in property or equipment damage.

SAFETY



WARNING

These are general safety rules, which must be followed. You are also required to read and understand the Operators Manual as there are instructions, which are more detailed specific to this machine.



HANDLING PERSONNEL

1. Cranes can only be used to lift people when it is the least hazardous way to do the job. (See OSHA 1926.550g, and ASME / ANSI B30.23.)



TRAINING AND KNOWLEDGE

1. Safety must always be the operators most important concern.
2. Do not operate this crane until you have been trained in its operation. This crane must only be operated by trained personnel, who have demonstrated their ability to do so safely.
3. Comply with the requirements of current Occupational Safety and Health Administration (OSHA) standards, the current American National Standards Institute (ANSI) B30.5 latest edition.
4. Read and Understand all Decals and Warnings.
5. Read and Understand the Rating Chart.
6. Know that the crane can safely lift each load before attempting to lift.

7. Operator must understand crane signals and take signals only from designated signal people; except the operator must obey the stop signal from anyone.

 **OPERATOR'S RESPONSIBILITIES**

1. Read and understand the Operator's Manual.
2. Make sure the machine is in proper order and that all operational aids and warning signals are functional before operating.
3. Keep the machine clean, including all instrumentation, windows, lights and other glazed surfaces.
4. Remove all oil, grease, mud, ice and snow from walking surfaces.
5. Store tools and other necessary items in the tool box.
6. Never lift a load without a Rating Chart Manual in the cab.
7. Know the load to be lifted.
8. Be alert, physically fit and free from the influences of alcohol, drugs or medications that might affect the operators eyesight, hearing, or reactions.
9. Keep people, equipment and material out of the work area.
10. Signal person must be used when the operators vision is blocked or working in hazardous areas such as power lines or people.
11. Keep a fully charged fire extinguisher and first aid kit in the cab at all times, and be familiar with how to use these items.
12. Know about movements of other machinery, trucks and personnel at the jobsite.
13. Never permit people on the machine platform while the machine is working.

14. Make sure everyone is in a safe place before moving the hook, boom, load or outriggers.
15. Start and stop movements smoothly and swing at speeds that will keep the load under control.
16. Keep at least two full wraps of wire rope on drum when operating.
17. Feet must be kept on the pedals while foot pedal brake locks are in use.
18. Use tag lines to keep loads under control.
19. Keep load close to ground.
20. Use shortest boom possible.
21. Never leave a running machine unattended or load suspended.
22. Always use outriggers in accordance with requirements of Load Rating Chart and operators manuals.



SIGNAL PERSON'S RESPONSIBILITY

1. Standard crane signals must be used, and understood.
2. Assist the operator in safe and efficient operation, without endangering people or property.
3. Have a clear understanding of the work to be done.
4. Signal people must place themselves where they can be clearly seen and where they can safely observe the entire operation.



RESPONSIBILITIES OF ALL CREW MEMBERS

1. Unsafe conditions or practices must be corrected.
2. Obey all warning signs.
3. Watch out for your safety and the safety of others.
4. Know and understand proper machine erection and rigging procedures.
5. Alert operator and signal person of dangers, such as power lines, unstable ground etc.



MANAGEMENT RESPONSIBILITY

1. Operator's must be competent, physically fit and if required licensed.
2. Operator, signal people and riggers must be trained in correct crane operation and use.
3. Operator and Signal people must know standard crane signals.
4. Have a supervisor at job site to be responsible for job safety.
5. Crew members given specific safety responsibilities and instructed to report any unsafe conditions to supervisor.
6. Supply the weight on the load to be lifted to the operator.
7. Verify that all crew members are familiar with OSHA, ANSI B30.5 requirements as well as instructions in manuals.



PLANNING THE JOB

1. Have a clear understanding of work to be done.
2. Consider all dangers at jobsite.
3. Know what crew members are needed?
4. Assign responsibilities.
5. Know the weight of load to be lifted.
6. Determine lift radius, boom angle, and the rated lifting capacity of crane.
7. Establish how signal people will communicate with operator?
8. Utilize equipment which will do job safety.
9. Establish how equipment can be safety transported to job site?
10. Determine where gas lines, power lines, or structures are which must be moved.
11. Ensure that surface is strong enough to support machine and load.
12. Determine how load will be rigged.
13. Establish special safety precautions, if necessary.
14. Consider weather conditions.
15. Keep unnecessary people and equipment away from work place.
16. Position machine to use shortest boom and radius possible.



OPERATOR'S SAFETY CHECK

1. Safety related items must be in place.
2. Check machine log book, to see if periodic maintenance and inspections have been performed.
3. Ensure that necessary repairs have been completed.
4. Inspect wire rope for damage (kinks, broken wires etc.)
5. Be sure no unauthorized field modifications have been made.
6. Check for air and hydraulic oil leaks.
7. Check control positions before starting engine.
8. After starting engine, check all gauges and indicators for proper readings.
9. Test all controls.
10. Check brakes and clutches.
11. Check load brakes by lifting a load a few inches off the ground and holding it.



OPERATOR AIDS CHECK

Ensure that the listed items are in place and operational.

1. Boom hoist upper angle limit switch. (Lattice Boom).
2. Boom angle indicator.
3. Backup Alarms.
4. Anti-Two Block devices.
5. Overload Protection, Load Indicators, Rated Capacity Limiters



OPERATION OVERLOAD PREVENTION

1. Know the weight of the load.
2. Load radius will increase when the load is lifted. Reduce radius at start of lift to allow for this.
3. Know the weight of hook, and rigging.
4. Know boom length, jib length, parts of line and operating area.
5. Use next lower rated capacity when working at boom lengths or radius between the figures on the rated lifting capacity chart.
6. Never lift a load without knowing whether it is within the rated capacity.
7. Never operate with anything other than recommended counterweight.

Unauthorized reduction or additions of counterweight constitute a safety hazard.

8. Do not lift loads if winds create a hazard. Lower the boom if necessary. See the Rating Chart Manual for possible restrictions.
9. Avoid side loading.
10. Never let the load or any other object strike the boom.
11. Release load slowly, be sure boom never tightens against back stops. (Lattice Boom).
12. Place the boom point directly above the load when lifting.
13. Be sure loads are freely suspended.



OPERATION SETUP

1. Be sure the load bearing surface is strong enough to support the machine and load.
2. Be sure cranes are level, check frequently and relevel when necessary.
3. Stay away from rotating cranes, erect barricades to keep people away. Make sure these area's are clear before swinging.



POWER LINE SAFETY

1. Determine whether there are power lines in the area before starting any job. Only operate around power lines in accordance with Federal, State and Local Regulations as well as ANSI B30.5 latest edition.
2. Never remove materials from under powerlines with a crane if the boom or machine is capable of contacting them.
3. No part of crane or load must come in contact with, or violate the minimum allowable clearance required for operation of crane near electrical lines.
4. Should contact occur stay on crane until the boom is cleared or until the current is turned off.
5. If in contact keep all personnel off the crane. If you must leave the crane, JUMP, DO NOT STEP OFF, leave area by jumping with feet together.
6. Use a signal person when working around power lines.

1. Always wait until machine has stopped before getting on and off equipment. Do not jump on or off.
2. Do not use controls and steering wheel as hand holds.
3. Keep the machine clean and dry.
4. Replace all broken ladders.
5. Keep non-slip surfaces in good condition.

	TRAVEL
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1. Care must be taken when cranes are driven (traveled) whether on or off the job site.
2. Watch for people, power lines, low or narrow clearance, bridge or road load limits, steep hills or uneven terrain.
3. Position boom in line with the direction of travel.
4. Inflate tires to specified pressure.
5. Travel slowly and avoid sudden stops and starts.
6. It is recommended that the seat belt be used during transit and travel.
7. Make sure travel surface can support weight of machine and load.
8. Always set parking brakes when parking machine.



OPERATIONAL AIDS

EMERGENCY PROCEDURES

When operational aids are inoperative or malfunctioning, the following requirements shall apply for continued use or shutdown of the crane.

1. Steps shall be taken to schedule repairs immediately. The operational aids shall be put back into service as soon as replacement parts, if required, are available and the repairs and calibration can be carried out. "Can be carried out" does not mean, when convenient. Every effort must be made to expedite the repairs and recalibration.
2. When a load indicator, rated capacity indicator, or rated capacity limiter is inoperative or malfunctioning, the designated person responsible for supervising the lifting operations shall establish procedures for determining load weights. Unknown loads shall not be lifted without a properly functioning load indicating device.
3. When a boom angle or radius indicator is inoperative or malfunctioning, radii or boom angle shall be determined by measurement.
4. When an anti-two-block device, two-blocking damage prevention or two-block warning device is inoperative or malfunctioning, the designated person responsible for supervising the lifting operations shall establish procedures, such as assigning an additional signal person, to furnish equivalent protection. This does not apply when lifting personnel in load line supported baskets. Personnel shall not be lifted in load supported baskets when two-block devices are not functioning properly.
5. When a boom length indicator is inoperative or malfunctioning, the designated person responsible for supervising the lifting operations shall establish the boom length at which the lift will be made by actual measurement or marking on the boom.
6. When a level indicator is inoperative or malfunctioning, other means shall be used to level the crane within the level requirements specified by the manufacturer.

In certain situations, it may be necessary to override the automatic motion limiter of the LMI / ATB unit in order to safely operate the crane. These include but are not limited to:

The load block may lift the ATB weight before the load line can be tensioned while stowing the boom. This will cause a motion cutout. Overriding the system, in this situation is acceptable in order to continue to winch in slack line, securing the boom. Boom must be in the lowered position.

If the Boom Up/Down control lever is pulled back after the boom is fully raised pressure will be trapped in the base of the main cylinder. This will cause a motion cutout. Overriding the system is acceptable in order to boom down enough to release the trapped pressure.

CONTROLS AND INSTRUMENTS

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