



Sitework Systems



TX420, TX425 Series

Service Manual



ABOUT THIS MANUAL

This service manual was written expressly for Toro service technicians. The Toro company has made every effort to make the information in this manual complete and correct.

Basic shop safety knowledge and mechanical/electrical skills are assumed. The Table of Contents lists the systems and the related topics covered in this manual.

For service information on drive systems, please refer to the Hydro-Gear BDP-10A/16A/21L Pump service manual (form no. 492-4789), Hydro-Gear P Series Pump service manual (form no. BLN 52503) and Parker-Ross TF wheel motor service manual (form no. 492-4753). For information specific to the engines used on this unit, refer to the appropriate engine manufacturer's service and repair instructions.

Units covered on in this manual are: TX420 model years 2000 - 2008
TX425 model years 2002 - 2008

The manual may also be specified for use on later model products.

The hydraulic power system is precision machinery. Maintain strict cleanliness control during all stages of service and repair. Cover or cap all hose ends and fittings whenever they are exposed. Even a small amount of dirt or other contamination can severely damage the system.

We are hopeful that you will find this manual a valuable addition to your service shop. If you have any questions or comments regarding this manual, please contact us at the following address:

The Toro Company
LCB Technical Services
8111 Lyndale Avenue South
Bloomington, MN 55420

The Toro Company reserves the right to change product specifications or this manual without notice.

REVISIONS

Revision 000 8/01/08
Revision 001 1/01/09

TABLE OF CONTENTS

SAFETY INFORMATION

General Information.....	1-1
Think Safety First.....	1-1

SPECIFICATIONS

General Specifications.....	2-1
Dimensions.....	2-1
Periodic Maintenance Items.....	2-2
Performance TX420.....	2-2
Performance TX425.....	2-2
Hydraulic System TX420.....	2-3
Hydraulic System TX420 cont.....	2-4
Electrical System TX420.....	2-4
Track System TX420.....	2-4
Hydraulic System TX425.....	2-5
Hydraulic System TX425 cont.....	2-6
Electrical System TX425.....	2-6
Track System TX425.....	2-6
Torque Specifications.....	2-7
Standard Torque for Dry, Zinc Plated, and Steel Fasteners (Inch Series).....	2-8
Standard Torque for Dry, Zinc and Steel Fasteners (Metric Series).....	2-9
Other Torque Specifications.....	2-10
Equivalents and Conversions.....	2-11
U.S. to Metric Conversions.....	2-12

MAINTENANCE

Recommended Maintenance Schedule.....	3-1
Greasing the Traction Unit.....	3-2
Maintaining the Road Wheels.....	3-3
Hydraulic Reservoir Tank.....	3-4
Location.....	3-4
Checking the Hydraulic Fluid.....	3-4
Replacing the Hydraulic Filter.....	3-5
Changing the Hydraulic Fluid.....	3-6
Checking the Hydraulic Lines.....	3-7
Vents - Hydraulic Tank.....	3-7
Engine Servicing.....	3-8
Air Filter.....	3-9
Fuse Block.....	3-9
Belt, Hydrostatic Pumps.....	3-10
Track Inspection.....	3-10
Battery Maintenance.....	3-11
Testing.....	3-12
Special Tools.....	3-12

TABLE OF CONTENTS

ENGINE (A)

TX420 & 425 250000399 & lower.....	4A-1
Engine Removal.....	4A-1
TX420 & 425 250000399 & lower.....	4A-13
Engine Installation.....	4A-13

ENGINE (B)

TX420 & 425 250000401 & up.....	4B-1
Engine Removal.....	4B-1
TX420 & 425 250000401 & up.....	4B-15
Engine Installation.....	4B-15

EXHAUST

Crossover Manifold Replacement TX420 & 425 250000401 & up.....	5-1
Crossover Manifold Removal.....	5-1
Crossover Manifold Installation.....	5-3
Muffler Replacement TX420 & 425 250000401 & up.....	5-5
Muffler Removal.....	5-5
Muffler Installation.....	5-7

ELECTRICAL

Relay.....	6-1
Purpose.....	6-1
Location.....	6-1
How It Works.....	6-1
Testing.....	6-2
Ignition Switch.....	6-2
Purpose.....	6-2
Location.....	6-2
How It Works.....	6-2
Testing.....	6-3
Auxiliary Neutral Switch.....	6-3
Purpose.....	6-3
Location.....	6-3
How It Works.....	6-4
Testing.....	6-4
Hour Meter/Tachometer.....	6-4
Purpose.....	6-4
Location.....	6-5
How It Works.....	6-5
Testing.....	6-6
Neutral Proximity (Magnetic) Switch.....	6-6
Purpose.....	6-6
Location.....	6-6
How It Works.....	6-6
Testing.....	6-7
Light, Hydraulic Temperature.....	6-7
Purpose.....	6-7
Location.....	6-7
How It Works.....	6-7
Testing.....	6-8

TABLE OF CONTENTS

ELECTRICAL cont.

Sensor, Hydraulic Temperature	6-8
Purpose.....	6-8
Location	6-8
How It Works.....	6-9
Testing.....	6-9
Alarm, Hydraulic Oil.....	6-9
Purpose.....	6-9
Location	6-9
How It Works.....	6-9
Testing.....	6-10
Fuel Sender	6-10
Purpose.....	6-10
Location	6-10
How It Works.....	6-10
Testing.....	6-11
Fuel Gauge.....	6-11
Purpose.....	6-11
Location	6-11
How It Works.....	6-11
Testing.....	6-11
Fuses.....	6-12
Purpose.....	6-12
Location	6-12
How It Works.....	6-12
Testing.....	6-12
Hydraulic Oil Cooler Fan	6-12
Purpose.....	6-12
Location	6-12
How It Works.....	6-13
Testing.....	6-13
Fusible Link	6-13
Purpose.....	6-13
Location	6-13
How It Works.....	6-13
Testing.....	6-14
Brake Switch.....	6-14
Purpose.....	6-14
Location	6-14
How It Works.....	6-14
Testing.....	6-14
Oil Sentry, Kohler Engine	6-15
Purpose.....	6-15
Location	6-15
How It Works.....	6-15
Testing.....	6-15
Fuel Solenoid, Kohler Engine.....	6-16
Purpose.....	6-16
Location	6-16
How It Works.....	6-16
Testing.....	6-17

TABLE OF CONTENTS

ELECTRICAL cont.

Diodes, Kohler Engine.....	6-17
Purpose.....	6-17
Location	6-17
How It Works.....	6-17
Testing.....	6-18
Electrical Schematic TX420 Ser #200000100 - 200000999.....	6-19
Electrical Schematic TX420 Ser #210000100 - 210000500.....	6-20
Electrical Schematic TX420 Ser #210000501 - 220000400.....	6-21
Electrical Schematic TX420 Ser #220000401 - 270000999.....	6-22
Electrical Schematic TX420 Ser #280000100 - 280000999.....	6-23
Electrical Schematic TX425 Ser #220000100 - 270000999.....	6-24
Electrical Schematic TX425 Ser #280000100 - 280000999.....	6-25

HYDRAULICS (A)

TX420 & 425 - All models, all years.....	7A-1
Auxiliary Valve Rebuild.....	7A-1
Auxiliary Valve	7A-1
Auxiliary Valve Disassembly.....	7A-1
Relief Assembly	7A-8
Spool Assembly	7A-8
Auxiliary Valve Assembly	7A-8
Hydraulic Schematic TX420 200000100 - 210000500.....	7A-16
Hydraulic Schematic TX420 210000501 - 240000300 / TX425 220000100 - 240000300	7A-17
Hydraulic Schematic TX420 240000301 - 280000999 / TX425 240000301 - 280000999	7A-18

HYDRAULICS (B)

TX420 & 425 240000299 & lower.....	7B-1
Hydraulic Tandem Pump Removal.....	7B-1
Rubber Coupler Assembly Removal.....	7B-5
Rubber Coupler Assembly Installation.....	7B-11
Hydraulic Tandem Pump Installation.....	7B-14
TX420 & 425 240000299 & lower.....	7B-19
Hydraulic Tandem Pump Rebuild.....	7B-19
11 gpm Pump Assembly Rebuild.....	7B-24
5 gpm Pump Assembly Rebuild.....	7B-29
TX420 & 425 250000399 & lower.....	7B-33
Tilt Cylinder Replacement.....	7B-33
TX420 & 425 230000599 & lower.....	7B-37
Tilt Cylinder Assembly Rebuild.....	7B-37
Tilt Cylinder Disassembly	7B-39
Tilt Cylinder Assembly	7B-44
TX420 & 425 230000999 & lower.....	7B-46
Lift Cylinder Replacement.....	7B-46
TX420 & 425 230000999 & lower.....	7B-52
Lift Cylinder Rebuild.....	7B-52
Lift Cylinder Disassembly	7B-54
Lift Cylinder Assembly	7B-59
TX420 & 425 240000299 & lower.....	7B-61
Auxiliary Valve Removal.....	7B-61
Auxiliary Valve Installation.....	7B-64

TABLE OF CONTENTS

HYDRAULICS (B) cont.

TX420 & 425 240000299 & lower.....	7B-67
2 Spool Loader Valve Removal.....	7B-67
2 Spool Loader Valve Installation.....	7B-70
TX420 & 425 240000300 & lower.....	7B-72
Two Spool Loader Valve Rebuild	7B-72
Disassembly	7B-73
Assembly	7B-85

HYDRAULICS (C)

TX420 & 425 250000401 & up	7C-1
Hydraulic Tandem Pump Removal.....	7C-1
TX420 & 425 250000401 & up	7C-5
Rubber Coupler Assembly Removal.....	7C-5
Rubber Coupler Assembly Installation.....	7C-11
Hydraulic Tandem Pump Installation.....	7C-15
TX420 & 425 240000301 & up	7C-20
Hydraulic Tandem Pump Rebuild.....	7C-20
5 gpm Pump Disassembly.....	7C-22
11 gpm Pump Disassembly	7C-23
11 gpm Pump Assembly Rebuild.....	7C-26
5 gpm Pump Assembly Rebuild.....	7C-29
Pump Assembly.....	7C-32
TX420 & 425 250000401 & up	7C-34
Tilt Cylinder Replacement.....	7C-34
Tilt Cylinder Installation	7C-37
TX420 & 425 230000601 & up	7C-39
Tilt Cylinder Assembly Rebuild.....	7C-39
Tilt Cylinder Disassembly	7C-41
Tilt Cylinder Assembly	7C-47
TX425 250000401 & up.....	7C-49
Lift Cylinder Replacement.....	7C-49
TX420 & 425 240000001 & up	7C-55
Lift Cylinder Assembly Rebuild	7C-55
Lift Cylinder Disassembly	7C-57
Lift Cylinder Assembly	7C-62
TX420 & 425 240000301 & up	7C-64
Auxiliary Valve Removal.....	7C-64
Handle Removal	7C-67
Handle Installation	7C-69
Safety Switch Removal	7C-70
Safety Switch Installation	7C-70
Auxiliary Valve Installation.....	7C-70
TX420 & 425 240000301 & up	7C-73
Loader Valve Removal.....	7C-73
Loader Valve Installation	7C-77

TABLE OF CONTENTS

HYDRAULICS (C) cont.

TX420 & 425 240000301 & up	7C-80
Loader Valve Disassembly & Assembly	7C-80
Joystick Assembly Removal	7C-81
Joystick Assembly Installation	7C-83
Spool Removal	7C-86
Spool Assembly	7C-91
Main Relief Valve	7C-98
Work Port Relief	7C-100

DRIVE SYSTEM

TX420 & 425 All Serial Numbers	8-1
Drive Belt Removal	8-1
Drive Belt Installation	8-2
TX420 & 425 All Serial Numbers	8-2
Lifting Unit for Service	8-2
TX420 All Serial Numbers	8-4
Track Removal	8-4
TX420 All Serial Numbers	8-6
Tensioner Wheel Bearing Replacement	8-6
Bearing Installation	8-7
TX420 All Serial Numbers	8-9
Track Guide Removal	8-9
TX420 All Serial Numbers	8-10
Track Guide Installation	8-10
TX420 All Serial Numbers	8-12
Track Installation	8-12
TX425	8-13
Track Removal	8-13
TX425 220000401 & higher	8-15
Track Guide Removal	8-15
TX425 220000401 & higher	8-16
Track Guide Installation	8-16
TX425	8-19
Track Installation	8-19
TX420 240000100 & higher	8-21
TX425 240000300 & higher	8-21
Wheel Motor Removal	8-21
Wheel Motor Installation	8-25
TX425 220000001 - 220999999	8-29
Track Removal	8-29
TX425 220000001 - 220999999	8-31
Track Guide Removal	8-31
TX425 220000001 - 220999999	8-32
Track Guide Installation	8-32
TX425 220000001 - 220999999	8-33
Tensioner Arm Bearing Replacement	8-33
TX425 220000001 - 220999999	8-36
Tensioner Arm Bearing Installation	8-36

TABLE OF CONTENTS

DRIVE SYSTEM cont.

TX420 20000100 - 230000999.....	8-37
TX425 220000100 - 240000299.....	8-37
Wheel Motor Removal	8-37
Wheel Motor Installation	8-41
Drive Sprocket Rebuild.....	8-46
Track Installation	8-49
TX420 & 425 All Serial Numbers	8-53
Idler Arm Assembly Removal	8-53
TX420 & 425 All Serial Numbers	8-55
Idler Arm Assembly Installation	8-55
TX420 & 425 230000999 & lower.....	8-57
Traction Control Handle Assembly Removal.....	8-57
Traction Control Handle Assembly Installation.....	8-59
TX420 & 425 240000301 & up	8-61
Hydrostatic Pump Removal (Right Side)	8-61
Removal of Rear Panels	8-62
Marking the Right Hand Hydrostatic Pump Lines	8-65
Hydrostatic Pump Installation (Right Side)	8-69
Hydrostatic Pump Removal (Left Side).....	8-74
Removal of Rear Panels	8-74
Marking the Left Hand Hydrostatic Pump Lines.....	8-77
Hydrostatic Pump Installation (Left Side).....	8-82
TX420 & 425 240000300 & lower.....	8-88
Hydrostatic Pump (Left Side) Removal.....	8-88
Hydrostatic Pump (Left Side) Installation	8-93
Hydrostatic Pump (Right Side) Removal	8-99
Hydrostatic Pump (Right Side) Installation	8-104
Road Wheel Bearing Replacement	8-109
Road Wheel Bearing and Road Wheel Assembly Installation	8-111
Track Guide Alignment	8-113
TX420	8-113
TX425	8-115

BRAKE ASSEMBLY

TX420 & 425 250000399 & lower.....	9-1
Brake Assembly Removal	9-1
Brake Assembly Installation	9-4
TX420 & 425 250000399 & lower.....	9-7
Brake Cable Removal (Left Side Cable)	9-7
TX420 & 425 250000399 & lower.....	9-11
Brake Cable Installation (Left Brake Cable).....	9-11
TX420 & 425 250000399 & lower.....	9-18
Brake Cable Removal (Right Side Cable).....	9-18
TX420 & 425 250000399 & lower.....	9-21
Brake Cable Installation (Right Side Cable).....	9-21
TX420 & 425 250000401 - 270000999	9-26
Brake Cable Assembly Removal.....	9-26
Brake Cable Replacement	9-30
Brake Cable Assembly Installation.....	9-33

TABLE OF CONTENTS

BRAKE ASSEMBLY cont.

TX420 & 425 250000401 - 270000999	9-38
Brake Plate Removal	9-38
TX420 & 425 250000401 - 270000999	9-40
Brake Plate Installation	9-40
TX420 & 425 2008 Models	9-43
Brake Assembly Removal	9-43
Brake Cable Replacement.....	9-47
Brake Assembly Installation	9-49
Brake Plate Replacement.....	9-53
Brake Plate Removal	9-53
Brake Plate Installation	9-54
Brake Handle Spring Bracket Assembly Replacement.....	9-55
Brake Handle Spring Bracket Assembly Removal	9-55
Brake Handle Spring Bracket Assembly Installation	9-58

LOADER ARM

TX420 & 425 240000299 & lower.....	10-1
Loader Arm Assembly Removal	10-1
Loader Arm Bushing Replacement	10-7
TX420 & 425 240000299 & lower.....	10-8
Loader Arm Assembly Installation	10-8

CHASSIS

TX420 & 425 250000401 & up	11-1
Fan Replacement.....	11-1
Fan Installation.....	11-2
TX420 & 425 250000401 & up	11-5
Hood Replacement	11-5
Replacement Hood Installation	11-9
TX420 & 425 250000401 & up	11-14
Rear End Disassembly	11-14
Rear End Assembly	11-15

HYDRAULIC TESTING

TX420 & 425.....	12-1
Introduction	12-1
Flow Testing	12-1
Hydraulic Testing	12-3
Hydrostatic Testing Procedures.....	12-3
Auxiliary Circuit Pressure Test	12-4
Auxiliary Circuit Pressure Test Procedures	12-4
Auxiliary Circuit Flow Test	12-7
Auxiliary Circuit Flow Test Procedures.....	12-7
Flow Test Gear Pump to Loader Valve.....	12-8
Flow Test Gear Pump to Loader Valve Procedures	12-8
TX420 & 425 210000501 & up	12-10
Loader Circuit Pressure Test.....	12-10
Loader Circuit Pressure Test Procedures	12-11

TABLE OF CONTENTS

HYDRAULIC TESTING cont.

TX420 20000100 - 210000499.....	12-14
Loader Circuit Pressure Test.....	12-14
Loader Circuit Pressure Test Procedures	12-14
Hydrostatic Pump Flow Test.....	12-18
Hydrostatic Pump Flow Test Procedures	12-18
Left Drive System Flow Test.....	12-18
Right Drive System Flow Test	12-21
TX420 & 425.....	12-26
Traction Control Tracking Adjustment, Full Forward Position	12-26
TX420 & 425.....	12-27
Traction Control Neutral Adjustment	12-27
TX420 & 425.....	12-28
Purging Air Procedures	12-28

TOWER

TX420 & 425 240000301 & up	13-1
Control Panel and Tower Assembly Replacement.....	13-1
Raising the Loader Arms.....	13-1
Battery Removal	13-1
Engine Hood Assembly Removal.....	13-2
Belt Removal.....	13-3
Gauge/Electrical Removal	13-4
Control Panel Removal	13-7
Loader Arm Removal	13-31
Tower Removal	13-33
Replacement Control Panel Installation.....	13-49
Wire Harness Reinstallation.....	13-53
Loader Arm Assembly Installation.....	13-62
Hood Assembly Installation.....	13-67
Final Checks and Rear Panel Installation	13-68
TX420 & 425 240000300 & up	13-71
Control Panel and Tower Assembly Replacement.....	13-71
Control Panel Removal	13-74
Engine Hood Assembly Removal.....	13-95
Gauge/Electrical Removal	13-96
Belt Removal.....	13-100
Loader Arm Removal	13-101
Tower Replacement.....	13-103
Tower Installation	13-119
Replacement Control Panel Installation.....	13-120
Wire Harness Installation	13-125
Loader Arm Assembly Installation.....	13-135
Hood Assembly Installation.....	13-140
Final Checks & Rear Panel Installation.....	13-141

TABLE OF CONTENTS

MAIN FRAME

TX420 & 425 250000401 & up	14-1
Main Frame Replacement	14-1
Track Removal TX425	14-1
Tensioner Arm Removal	14-3
Track Guide Removal	14-3
Drive Wheel Removal	14-4
Loader Arm Assembly Removal	14-4
Tower Assembly Removal	14-13
Engine Removal	14-22
Brake Assembly Removal	14-27
Wheel Motor Removal	14-28
Transfer Fittings to New Frame	14-29
TX420 210000999 & lower	14-31
Hydraulic Tank Removal/Installation	14-31
Wheel Motor Installation	14-32
Brake Assembly Installation	14-33
Engine Installation	14-34
Tower Reinstallation	14-38
Loader Arm Assembly Installation	14-47
Drive Wheel Installation	14-58
Track Guide Installation	14-59
Tensioner Arm Installation	14-60
Final Machine Adjustments	14-64