Bobcat®

Service Manual



MT85

MT85 Mini Track Loader

S/N B3TR11001 & Above

7274811enUS (03-18) (C)

Printed in U.S.A.

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MAINTENANCE SAFETY

WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death. W-2003-0807

CORRECT

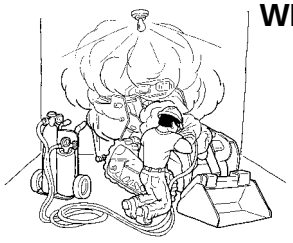


P-90216

Never service the Bobcat Mini Track Loader without instructions.

Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

WRONG



B-23041

Have good ventilation when welding or grinding painted parts.
Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.
Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.

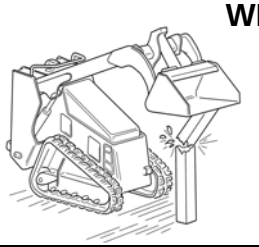
WRONG



NA9783

Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support device. Replace it if damaged.

WRONG



NA9784

Never work on loader with lift arms up unless lift arms are held by an approved lift arm support device. Replace if damaged.
Never modify equipment or add attachments not approved by Bobcat Company.

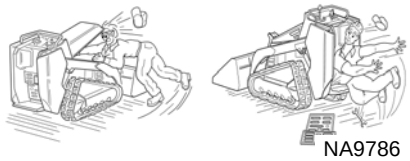
WRONG



NA9785

Stop, cool and clean engine of flammable materials before checking fluids.
Never service or adjust loader with the engine running unless instructed to do so in the manual.
Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate the skin or eyes.
Never fill fuel tank with engine running, while smoking or when near open flame.

WRONG



NA9786
NA9782

Keep body, jewelry and clothing away from moving parts, electrical contact, hot parts and exhaust.
Wear eye protection to guard from battery acid, compressed springs, fluids under pressure and flying debris when engines are running or tools are used. Use eye protection approved for type of welding.
Keep rear door closed except for service. Close and latch door before operating the loader.

WRONG



B-6589

Lead-acid batteries produce flammable and explosive gases.
Keep arcs, sparks, flames and lighted tobacco away from batteries.
Batteries contain acid which burns eyes or skin on contact. Wear protective clothing. If acid contacts body, flush well with water. For eye contact flush well and get immediate medical attention.

Maintenance procedures which are given in the Operation & Maintenance Manual can be performed by the owner/operator without any specific technical training. Maintenance procedures which are **not** in the Operation & Maintenance Manual must be performed **ONLY BY QUALIFIED BOBCAT SERVICE PERSONNEL. Always use genuine Bobcat replacement parts.** The Service Safety Training Course is available from your Bobcat dealer.

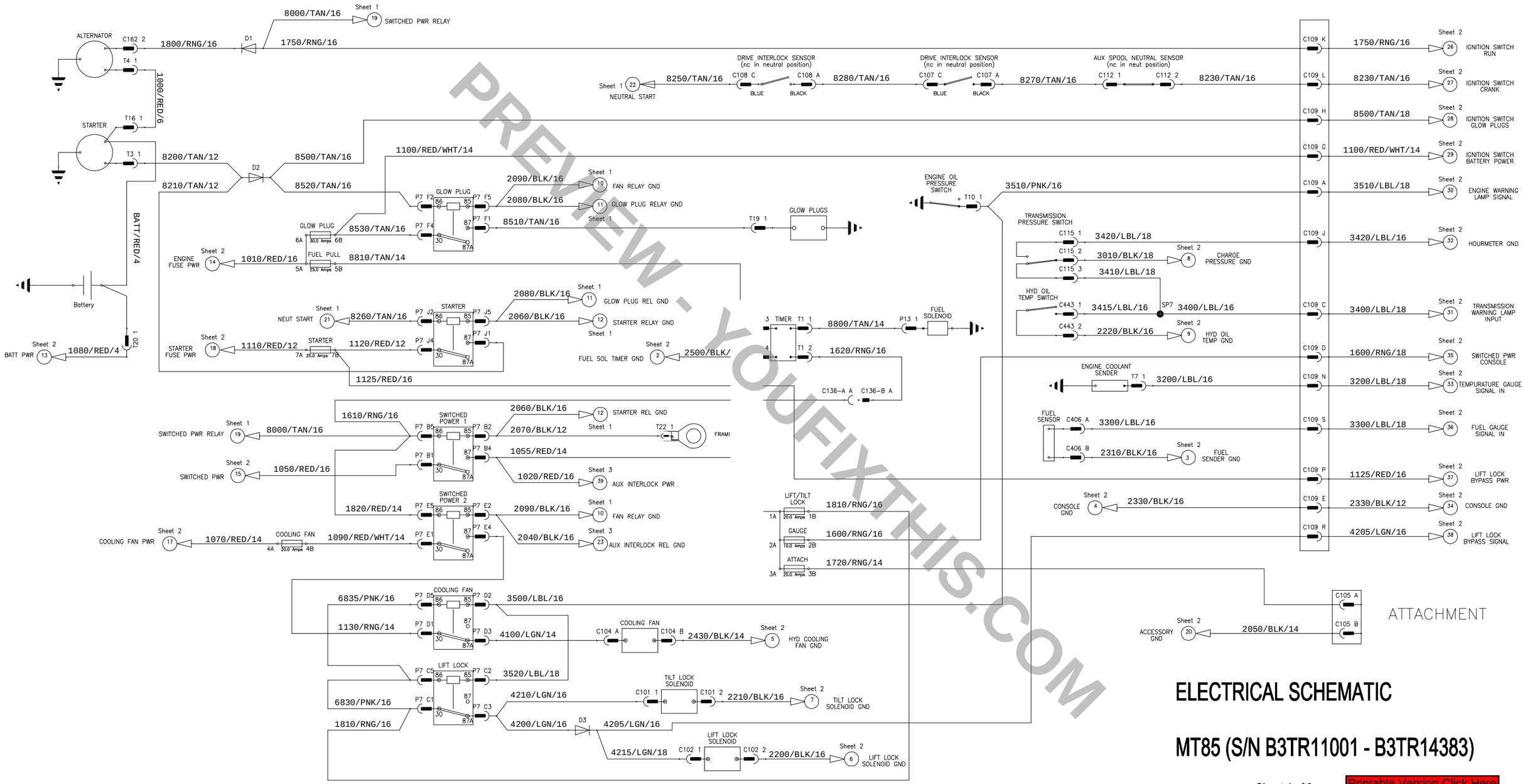
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CONSOLE HARNESS CONNECTOR



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ELECTRICAL SCHEMATIC

MT85 (S/N B3TR11001 - B3TR14383)

Sheet 1 of 3

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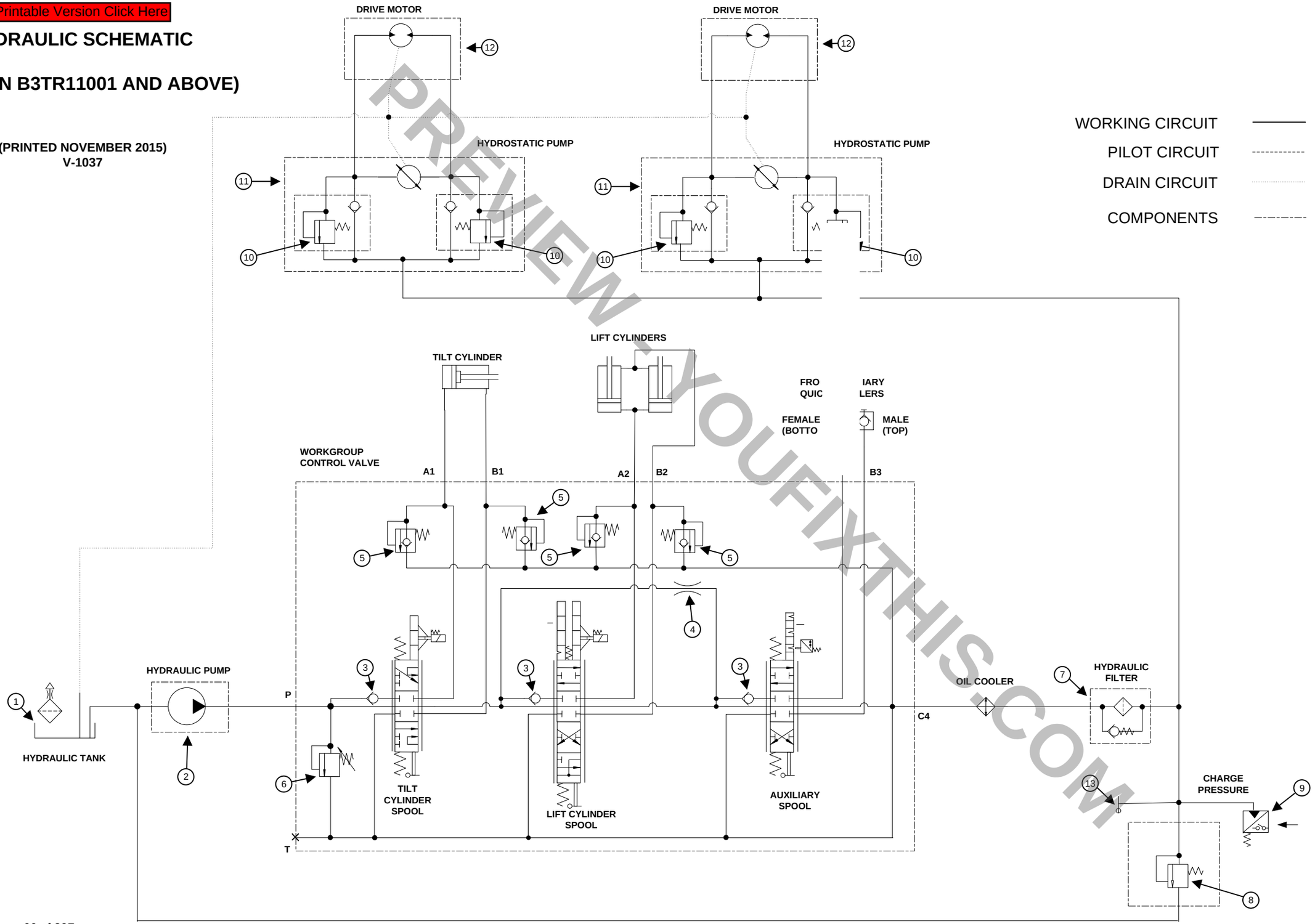
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HYDRAULIC SCHEMATIC

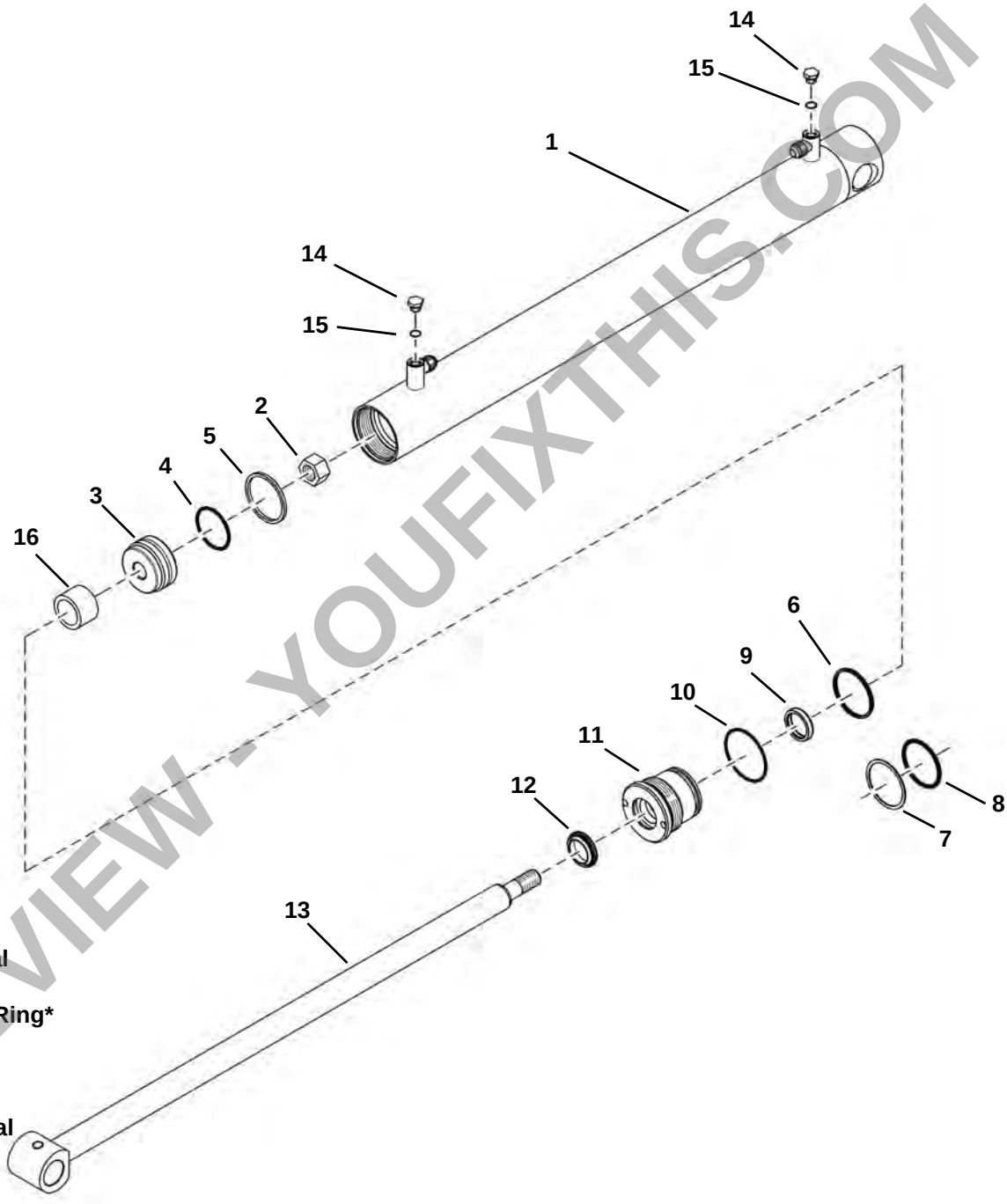
MT85 (S/N B3TR11001 AND ABOVE)

(PRINTED NOVEMBER 2015)
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Parts Identification



1. Case
2. Nut
3. Piston
4. Seal
5. O-ring
6. Quad Seal
7. O-ring*
8. Back-up Ring*
9. Rod Seal
10. O-ring
11. Head
12. Wiper Seal
13. Rod
14. Plug
15. O-ring
16. Spacer

*** 7 and 8 were replaced by a one-piece seal. See parts manual for replacement parts.**

NA9848S

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Torque Values

Kubota Metric Engine Bolts

Thread Size (Dia. x Pitch)	Material		
	Head Mark 4	Head Mark 7	Head Mark 10
M5 x 0.8		4 - 5 N•m (3 - 4 ft-lb)	
M6 x 1.0		8 - 9 N•m (6 - 7 ft-lb)	8 - 12 N•m (6 - 9 ft-lb)
M8 x 1.25	8 - 12 N•m (6 - 9 ft-lb)	15 - 22 N•m (11 - 16 ft-lb)	24 - 34 N•m (18 - 25 ft-lb)
M10 x 1.25	18 - 24 N•m (13 - 18 ft-lb)	30 - 41 N•m (22 - 30 ft-lb)	49 - 68 N•m (36 - 50 ft-lb)
M12 x 1.25	30 - 41 N•m (22 - 30 ft-lb)	54 - 73 N•m (40 - 54 ft-lb)	94 - 118 N•m (69 - 87 ft-lb)
M14 x 1.5	49 - 68 N•m (36 - 50 ft-lb)	79 - 108 N•m (58 - 80 ft-lb)	157 - 186 N•m (116 - 137 ft-lb)

Tightening Torques For General Use Screws, Bolts And Nuts

Grade / Nominal Diameter / Unit	Standard Screw and Bolt (4)			Special Screw and Bolt (7)		
	N·m	kgf·m	ft-lb	N·m	kgf·m	ft-lb
M6	7,9 - 9,3	0.80 - 0.95	5.8 - 6.9	9,8 - 11,3	1.00 - 1.15	7.23 - 8.32
M8	17,7 - 20,6	1.8 - 2.1	13.0 - 15.2	23,5 - 27,5	2.4 - 2.8	17.4 - 20.3
M10	39,2 - 45,1	4.0 - 4.6	28.9 - 33.3	49,0 - 55,9	5.0 - 5.7	36.2 - 41.2
M12	62,8 - 72,6	6.4 - 7.4	46.3 - 53.5	77,5 - 90,2	7.9 - 9.2	57.1 - 66.5

Screw and bolt material grades are shown by numbers punched on the screw and bolt heads. Prior to tightening, be sure to check out the numbers as shown below.

Punched number	Screw and bolt material grade
None or 4	Standard screw and bolt SS400, S20C
7	Special screw and bolt S43C, S48C (Refined)

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Troubleshooting

KEY TO CORRECT THE CAUSE
1. The hydraulic fluid level is low or air in the system.
2. The control lever linkage is disconnected.
3. The hydraulic pump has damage.
4. The control lever does not have smooth movement and / or is not returning to neutral position.
5. Relief valve is not at the correct pressure.
6. Suction leak on the inlet side of the hydraulic pump.
7. Fluid is cold. Wrong viscosity fluid. (See (MT85) MINI TRACK LOADER SPECIFICATIONS on Page SPEC-10-1.)
8. Using the loader for more than its rated capacity.
9. Internal leak in the cylinder(s).
10. External leak from the cylinder(s).
11. Damaged lift spool.
12. Excessive auxiliary hydraulics load.
13. Plugged oil cooler. (Air flow restricted)
14. Loose mounting hardware.
15. Lift or tilt lockout circuit or engine or pressure switch circuit failure.
16. Tilt or drive function over relief.
17. Spool not fully stroked.
18. Activate auxiliary control lever in both directions to release pressure.
19. Loose or damaged gear pump to engine coupler. (See Troubleshooting on Page 60-10-5.)
20. Electric cooling fan not operating.
21. Check Charge Pressure Relief setting

NOTE: The orifice between the lift and auxiliary valve sections provides flow to the auxiliary while the lift is being actuated. The lift function will be reduced at low flow conditions such as low engine speed.

* Engine OFF - Always engage parking brake.

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Performance

	With Standard Narrow Tracks and Bucket	With Optional Wide Tracks and Bucket
Rated Operating Capacity	385 kg (850 lb)	385 kg (850 lb)
Tipping Load	1102 kg (2429 lb)	1102 kg (2429 lb)
Operating Weight	1407 kg (3103 lb)	1489 kg (3282 lb)
Breakout Force - Lift	10440 N (2347 lbf)	10756 N (2418 lbf)
Breakout Force - Tilt	9657 N (2171 lbf)	10351 N (2327 lbf)
Travel Speed Forward Reverse	 0 - 6,4 km/h (0 - 4.0 mph) 0 - 4,7 km/h (0 - 2.9 mph)	 0 - 6,4 km/h (0 - 4.0 mph) 0 - 4,7 km/h (0 - 2.9 mph)

Controls

Machine Steering	Direction and speed controlled by one multifunction handle
Mini Track Loader Hydraulics - Lift and Tilt - Front Auxiliary (Std.)	 Controlled by joystick Controlled by fore and aft movement of hand lever
Auxiliary Pressure Release	Controlled by fore and aft movement of hand lever
Engine	Hand lever speed control; key-type starter switch
Service Brake	Two independent hydrostatic circuits controlled by one multifunction handle
Secondary Brake	One of the hydrostatic transmissions
Parking Brake (Std.)	Hand lever operation

Engine

Make / Model - B3TR11001 & Above	Kubota D902-E4B-BC-1
Fuel / Cooling	Diesel (Low Sulfur) / Liquid
Horsepower - ISO 9249 EEC / SAE J1349 Net - ISO 14396 Gross - SAE J1349 Gross	 17,5 kW (23.5 hp) @ 3600 rpm 18,2 kW (24.4 hp) @ 3600 rpm 18,5 kW (24.8 hp) @ 3600 rpm
Torque - ISO 9249 EEC / SAE J1349 Net - SAE J1349 Gross	 54,2 N•m (39.9 ft-lb) @ 2600 rpm 56,1 N•m (41.4 ft-lb) @ 2600 rpm
Number of Cylinders	3
Displacement	0,899 L (54.9 in^3)
Bore / Stroke	72,0 mm / 73,6 mm (2.83 / 2.90)
Lubrication	Gear Pump Pressure System with Filter
Crankcase Ventilation	Closed
Air Cleaner	Dual dry replaceable paper cartridges
Ignition	Diesel-Compression
Low Idle	1025 - 1125 rpm
High Idle	3770 - 3870 rpm
Engine Coolant	Propylene Glycol / Water Mixture

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SERVICE SCHEDULE

Maintenance Intervals

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures.

The service schedule is a guide for correct maintenance of the Bobcat mini track loader.

⚠ WARNING

AVOID INJURY OR DEATH

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W-2003-0807

Every 10 Hours (Before Starting The Mini Track Loader)

- **Engine Oil** - Check level and add as needed.
- **Engine Air Filters and Air System** - Check air filter condition indicator. Service filters only when required. Check for leaks and damaged components.
- **Engine Cooling System** - Clean debris from radiator and oil cooler areas. Check coolant level COLD and add premixed coolant as needed.
- **Fuel Filter** - Drain water and sediment from filter.
- **Hydraulic Fluid** - Check fluid level and add as needed. Do not over fill.
- **Lift Arms, Cylinders, Bob-Tach Pivot Pins & Wedges / CII Pivot Pins & Mounting Pins, Undercarriage Rollers & Idlers** - Lubricate with multipurpose lithium based grease.
- **Reverse Stop Panel (If Equipped), Neutral Start Interlocks, and Lift / Tilt Lockouts Systems** - Check for correct function. Clean dirt and debris from moving parts.
- **Parking Brake** - Check for proper function.
- **Indicators and Lights** - Check for function. Clean or repair as needed.
- **Safety Signs** - Check for damaged signs (decals). Replace any signs that are damaged.
- **General** - Clean dirt and debris from the operator position. Check for loose or broken parts, instrument operation, loose bolts or nuts, and oil leaks.
- **Continuous Flow Shutoff System** - Check for proper function.

Every 50 Hours

- **Hydraulic Hoses and Tubelines** - Check for damage and leaks. Repair or replace as needed.
- **Controls** - Check for correct operation. Adjust, repair or replace as needed.
- **Undercarriage** - Check for loose bolts and nuts.
- **Track Tension** - Check every 8 - 10 hours for the first 50 hours, then as scheduled. Check tension and adjust as needed.

Every 100 Hours

- **Engine Oil and Filter** - Service at first 50 hours, then as scheduled. Replace oil and filter.
- **Battery** - Check battery for damage. Check cables, connections, and electrolyte level; add distilled water as needed.
- **Drive Belts (Alternator / Water Pump / Fan Drive)** - Check condition. Replace as needed.
- **Spark Arrester Muffler** - Clean spark chamber.

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LIFTING AND BLOCKING THE MINI LOADER

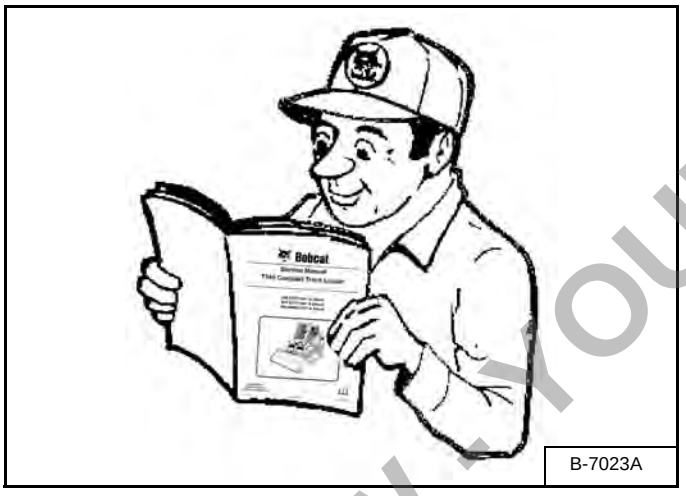
Procedure

WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

W-2408-0801

Figure 10-10-1



Read the Removal And Installation, Disassembly And Assembly, etc. completely to become familiar with the procedure before beginning **[Figure 10-10-1]**.

Always park the loader on a level surface.

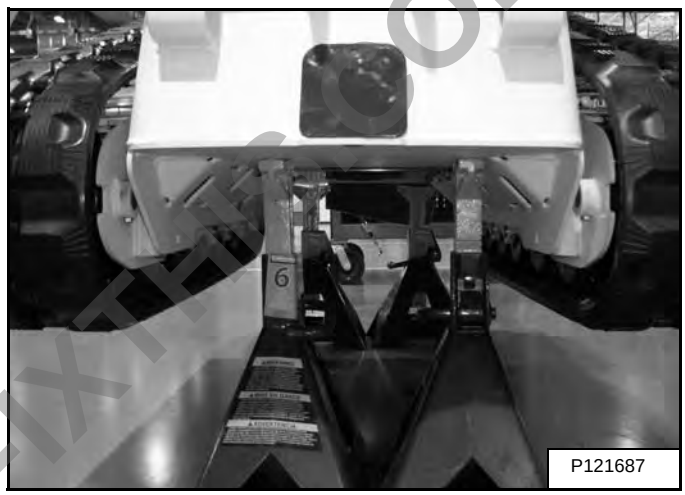
WARNING

MACHINE FALLING OR MOVING CAN CAUSE SERIOUS INJURY OR DEATH

Put jackstands under the front and rear of the machine before running engine for service.

W-2718-0208

Figure 10-10-2



Raise the front and rear of the machine and put jackstands under each corner **[Figure 10-10-2]**. Lower the machine to the jackstands.

NOTE: Make sure the jackstands do not touch the tracks.

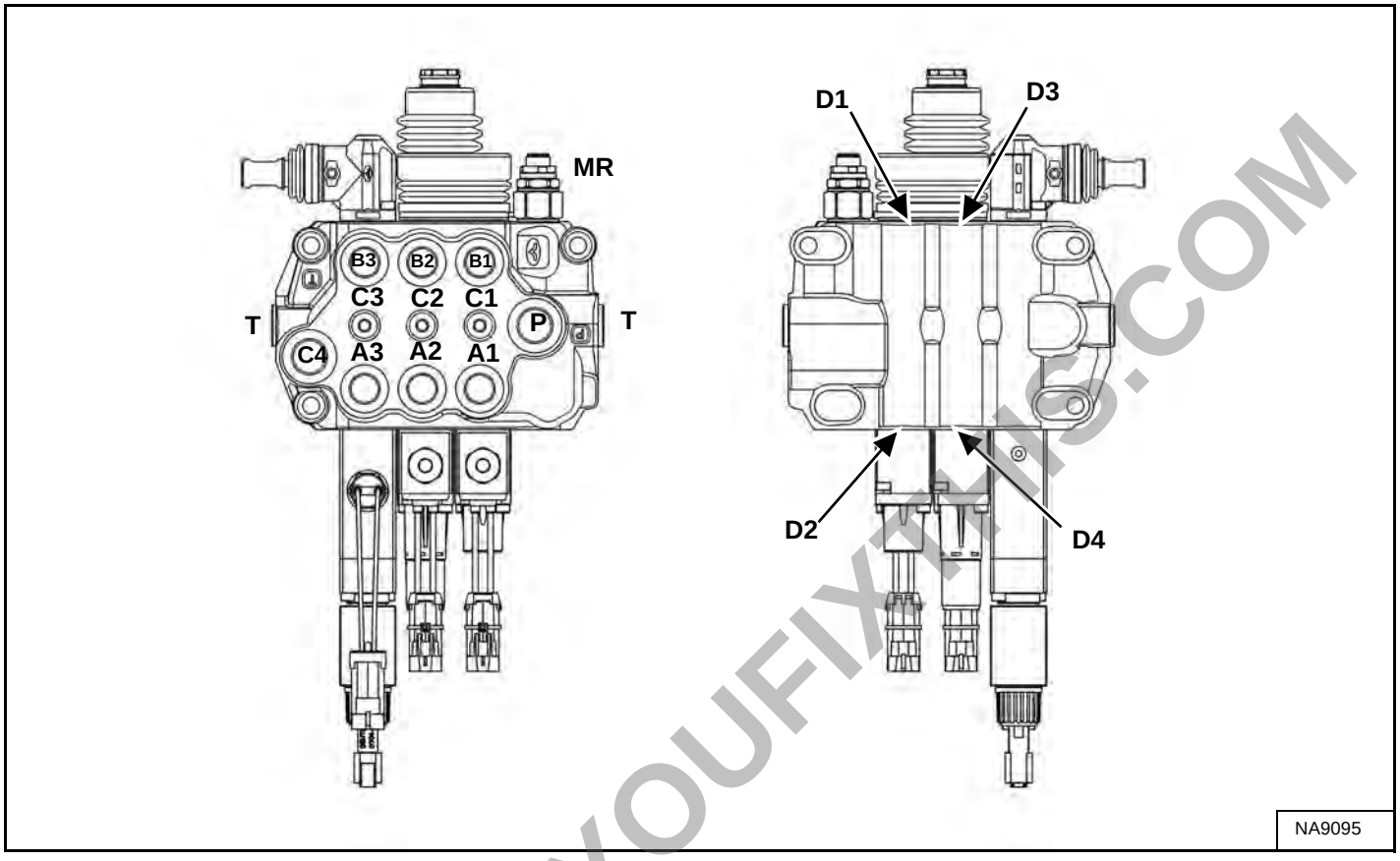
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HYDRAULIC CONTROL VALVE (CONT'D)

Identification Chart

Figure 20-50-10

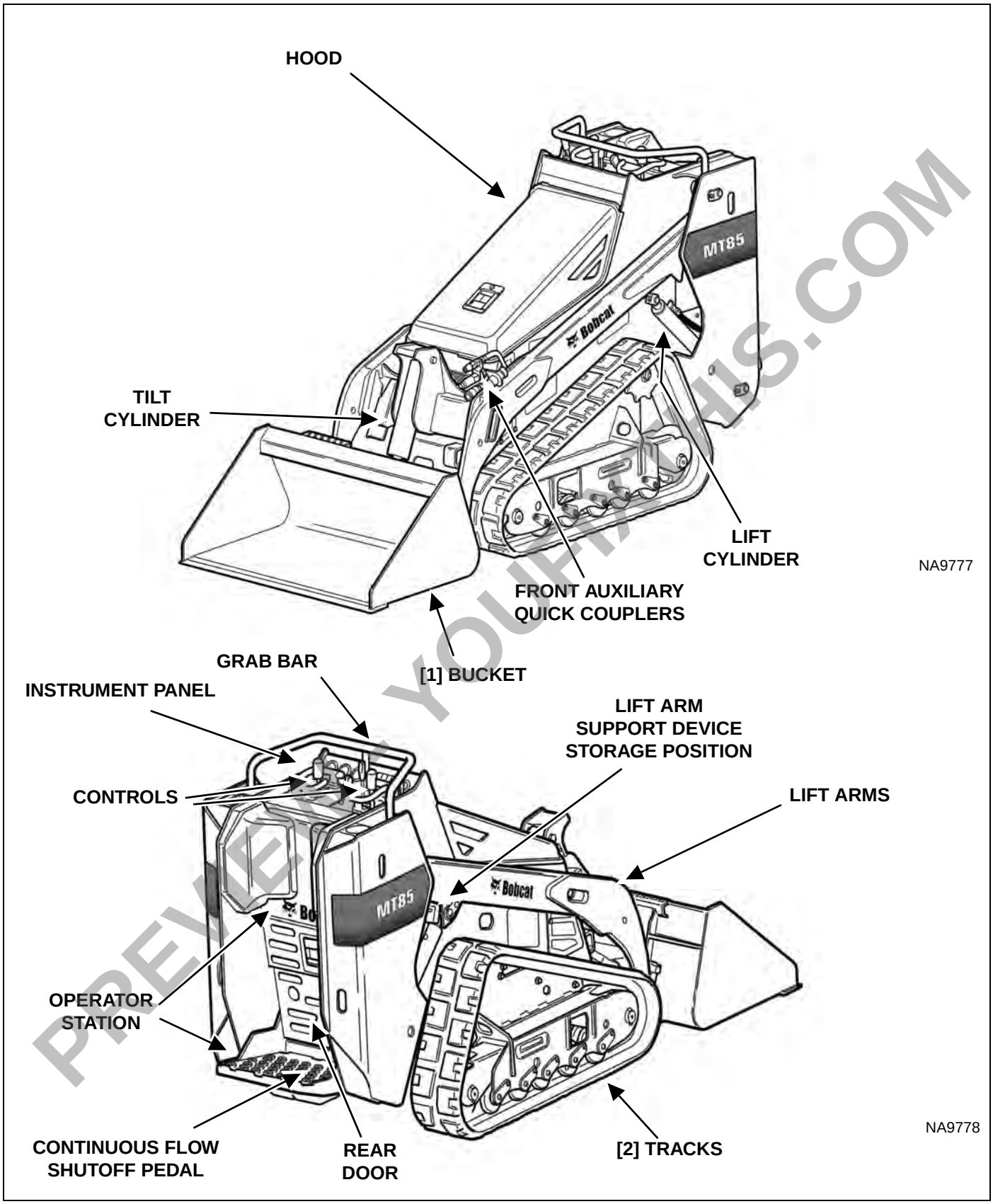


ITEM	MT85 MINI TRACK LOADER
A1	Tilt Cylinder Base End
A2	Lift Cylinder Base End
A3	Auxiliary Hydraulics Base End
B1	Tilt Cylinder Rod End
B2	Lift Cylinder Rod End
B3	Auxiliary Hydraulic Rod End
C1	Load Check Valve Tilt Function
C2	Load Check Valve Lift Function
C3	Load Check Valve Auxiliary Function
C4	Outlet (To Cooler)
D1	Tilt Rod Port Relief 18,6 MPa (186,2 bar) (2700 psi)
D2	Tilt Base Port Relief 18,6 MPa (186,2 bar) (2700 psi)
D3	Lift Rod Port Relief 18,6 MPa (186,2 bar) (2700 psi)
D4	Lift Base Port Relief 18,6 MPa (186,2 bar) (2700 psi)
P	Inlet (From Pump)
T	Plug
MR	Main Relief 20,0 MPa (199,9 bar) (2900 psi)

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MINI TRACK LOADER IDENTIFICATION



[1] BUCKETS - Several different buckets and other attachments are available for the Bobcat Mini Track Loader.
[2] TRACKS - Optional track widths are available.

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TRANSPORTING THE MINI LOADER ON A TRAILER

Loading And Unloading

⚠ WARNING

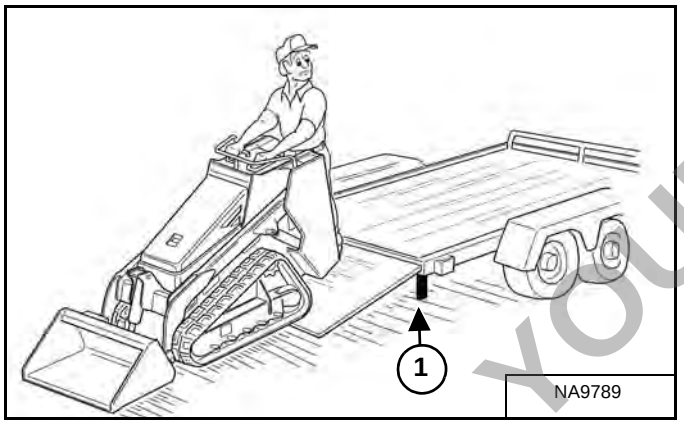
AVOID SERIOUS INJURY OR DEATH

Adequately designed ramps of sufficient strength are needed to support the weight of the machine when loading onto a transport vehicle. Wood ramps can break and cause personal injury.

W-2058-0807

Be sure the trailer or vehicle and ramps are of adequate size and capacity. (See (MT85) MINI TRACK LOADER SPECIFICATIONS on Page SPEC-10-1.)

Figure 10-30-1



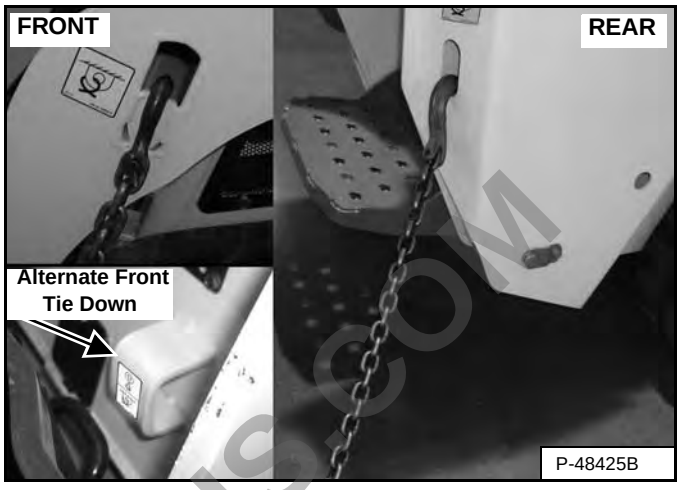
A mini track loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle **[Figure 10-30-1]**.

When using adjustable ramps, be sure the ramp width and spacing adequately covers the tread width. Do not attempt to mount ramps that are spaced too wide or too narrow.

The rear of the trailer must be blocked or supported (Item 1) **[Figure 10-30-1]** when loading or unloading the mini track loader to prevent the front end of the trailer from raising up.

Fastening

Figure 10-30-2



Fasten the mini track loader to the transport vehicle to prevent it from moving during sudden stops or when going up or down slopes **[Figure 10-30-2]**.

- Lower the bucket or attachment fully.
- Stop the engine.
- Install chains at the front and rear tie down positions **[Figure 10-30-2]**. (Both sides)
- Fasten each end of the chain to the transport vehicle.
- Use load binders to tighten the chains.

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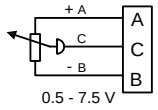
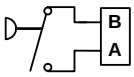
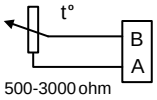
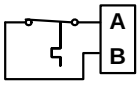
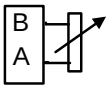
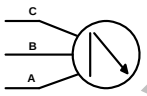
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Glossary Of Electrical Symbols (Cont'd)

SYMBOL	DESCRIPTION
	SENDERS AND SENSORS
	PRESSURE SENDER - Provides a variable voltage proportional to pressure. (Sender voltage rating is listed to show volts at high and low setting.)
	PRESSURE SWITCH - Switch opens or closes at a predetermined pressure to active a function or to turn on a warning light. (Switch is shown in the open position.)
	TEMPERATURE SENDER - Provides a variable resistance (ohm) signal proportional to temperature. (Sender ohm rating is listed to show ohms at high and low setting.)
	TEMPERATURE SWITCH - The switch opens or closes at a predetermined temperature to active a function or to turn on a warning light. (Switch is shown in the closed position.)
 **30-270 ohm**	FUEL SENDER - Provides a variable resistance, based on the fuel level in the tank. (Sender ohm rating is listed to show ohms at full and empty setting.)
	HALL EFFECT SENSOR - Detects linear or rotary position and provides a proportional variable voltage.
	SPEED SENSOR - magnetic pickup - detects rpm.

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