



SL30B

SKID STEER LOADER

SERVICE MANUAL
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AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home or on the highway, are caused by the failure of some individuals to follow simple and fundamental safety rules or precautions. For this reason **MOST ACCIDENTS CAN BE PREVENTED** by recognising the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment there are conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

Carefully read indications, cautions and safety warning quoted in the "SAFETY RULES" section.

A careful operator is the best insurance against an accident.

The complete observance of one simple rule would prevent many thousand serious injuries each year.

That rule is:

Never attempt to clean, oil or adjust a machine while it is in motion.



ATTENTION

On machines having hydraulically, mechanically and/or cable controlled equipment (such as showels, loaders, dozers, scrapers etc.) be certain the equipment is lowered to the ground before servicing, adjusting and/or repairing.

If it is necessary to have the equipment partially or fully raised to gain access to certain items, be sure the equipment is suitably supported by means other than the hydraulic lift cylinders, cable and/or mechanical device used for controlling the equipment.

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Product Support - Documentation Centre

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PRECAUTIONARY STATEMENTS PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements (“CAUTION”, “WARNING”, and “DANGER”) followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.



CAUTION: The word “CAUTION” is used where a safe behavioral practice according to operating and maintenance instructions and common safety practices will protect the operator and others from accident involvement.



WARNING: The word “WARNING” denotes a potential or hidden hazard which has a potential for serious injury. It is used to warn operators and others to exercise every appropriate means to avoid a surprise involvement with machinery.



DANGER: The word “DANGER” denotes a forbidden practice in connection with a serious hazard.

Failure to follow the “CAUTION”, “WARNING”, and “DANGER” instructions may result in serious bodily injury or death.

MACHINE SAFETY

Additional precautionary statements (“ATTENTION” and “IMPORTANT”) are followed by specific instructions. These statements are intended for machine safety.

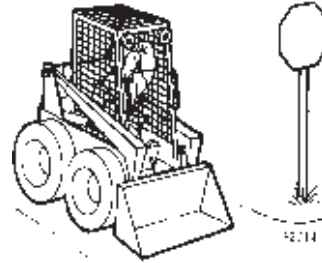
ATTENTION: The word “ATTENTION” is used to warn the operator of potential machine damage if a certain procedure is not followed.

IMPORTANT: The word “IMPORTANT” is used to inform the reader of something he needs to know to prevent minor machine damage if a certain procedure is not followed.

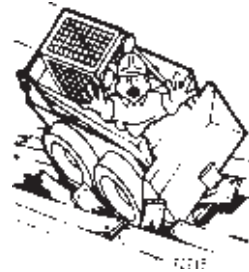
SAFETY PRECAUTIONS

Equipment should be operated only by those who are responsible and instructed to do so. Unsafe operating practices and improper use of the skid-steer loader and its attachments on the part of the operator can result in injuries. Observe the following safety precautions at all times:

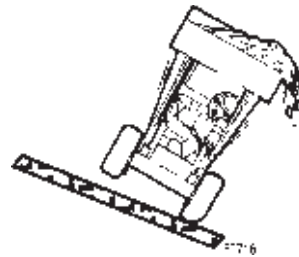
1. Give complete and undivided attention to the job at hand so that complete control of the loader is maintained at all times.



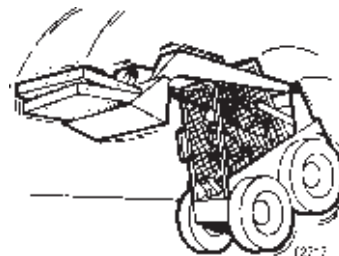
2. Be aware of ground conditions, drive slowly over rough ground and on slopes, keep alert for holes, ditches and other irregularities that may cause the loader to overturn.



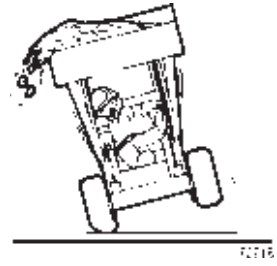
3. Avoid steep hillside operation which could cause the loader to overturn.



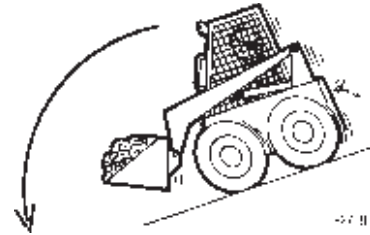
4. Never transport a loaded bucket at full height. Operate the loader with the load as low as possible until it becomes necessary to raise the boom to discharge the load into a truck, container, etc.



5. Reduce speed when turning so there is no danger of the loader overturning.



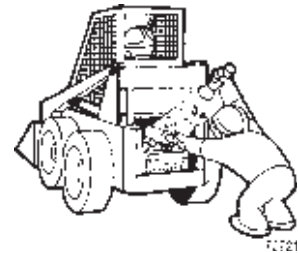
6. Never drive up or back up a hill or incline with a raised boom or the loader could overturn.



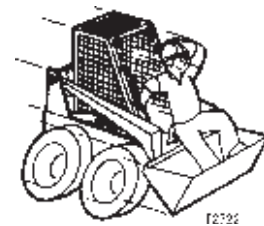
7. Always look behind you before backing the loader.



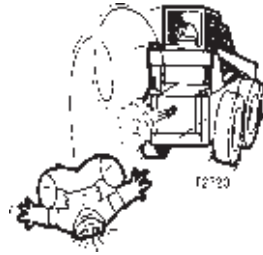
8. Maintain proper transmission oil level to prevent loss of hydrostatic braking. Check fluid levels on a regular basis as directed in this manual.



9. Do not allow passengers to ride on the loader at any time.



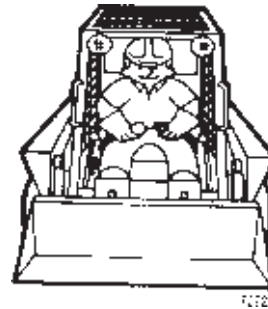
10. Do not allow children to operate the loader or ride on the loader at any time.



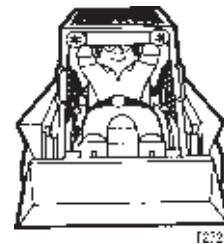
11. Do not allow anyone to operate the loader without proper instruction. Legislation in many countries require that all operators be instructed on the proper procedures and operation of the machine before use.



12. Do not operate the loader in any position other than while in the operator's seat with the seat belt securely fastened.



13. Before starting the engine, be sure that all operating controls are in neutral and parking brake is engaged.



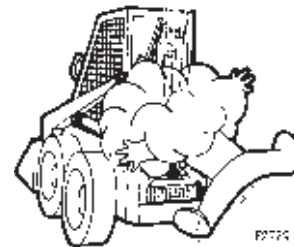
14. Never operate the loader engine in a closed building without adequate ventilation.



15. Refuel the loader outdoors with the engine shut off. Replace the fuel cap securely. Use an approved fuel container. Do not smoke when handling fuel. Avoid spilling fuel.



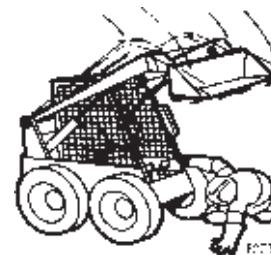
16. After operating the engine, never touch the muffler, exhaust pipe, engine or radiator until they have had time to cool.



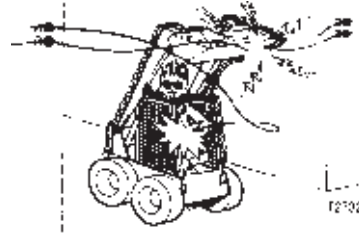
17. Dress appropriately - wear relatively tight-fitting clothing when operating the loader. Loose or torn clothing can catch in moving parts or controls.



18. Before servicing the loader or any of its attached equipment, be sure that the attachments are lowered to the ground or that the boom arms are supported by the boom lock pins.



19. Do not work under overhangs, electric wires, or where there is danger of a slide.



20. Wear an approved safety hat when operating the machine and while in any work area. Wear a suitable hearing protective device such as earmuffs or earplugs if you are exposed to noise exceeding 85dBa.

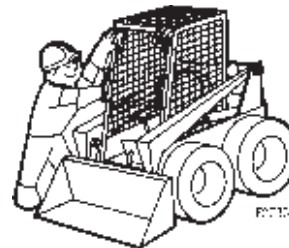
In the interests of safety and personnel comfort, protective clothing, boots and gloves should be worn where appropriate.



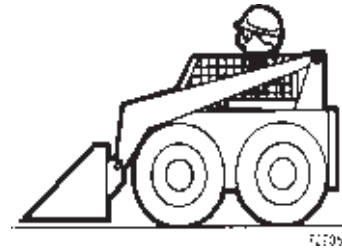
21. When driving the loader on a road or highway, use warning lights or warning devices as may be required by local or state government regulations. Warning lights and signs are available through your dealer.



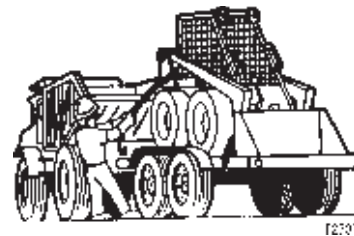
22. Keep the loader clean. Do not allow trash, debris or other articles to accumulate in the cab, floor or foot control pedal area that may hinder safe machine operation.



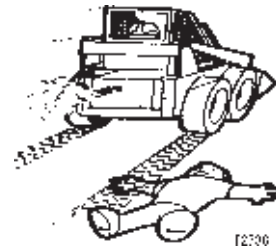
23. Under no circumstances should the frame, screens, or protective structures be modified. Never operate the loader with any of the shielding removed. Never operate the loader without windows and/or screens in place. Never extend any part of the body outside of the operator's area.



24. Always properly tie down the skid-steer loader to a truck or trailer before transport.



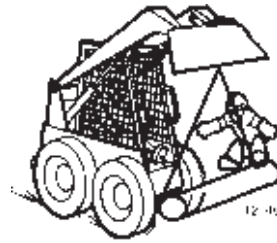
25. Make sure all bystanders are at a safe distance away from the loader before starting the engine.



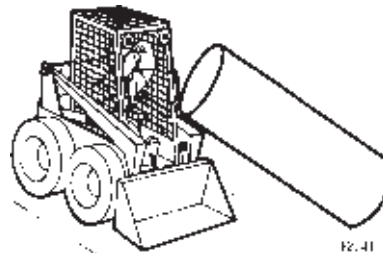
26. Do not allow anyone near the loader while the engine is running and the loader is operational.



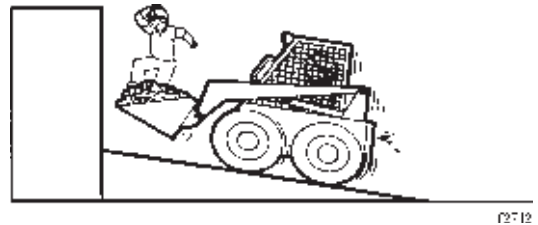
27. When using the skid-steer loader to crane objects, do not allow any person to ride on objects being craned.



28. Do not use the skid-steer loader as a work platform for supporting materials.



29. Do not lift personnel or allow personnel to work while standing in the bucket or on other attachments. This is not a man-lift.



! **IMPORTANT:** Legislation in many countries state it is the employer's responsibility to fully instruct each operator in the proper and safe operation of all operative equipment. Both employer and employee should therefore thoroughly familiarise themselves with the contents of this manual.

! **IMPORTANT:** Legislation in many countries state it is an employees' responsibility to fully understand the vehicle operation and ensure safe handling and prevent harm to themselves or others. Therefore thoroughly familiarise yourself with the contents of this manual.

! **IMPORTANT:** "Do not put the machine into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the directive" 89/392/EEC.

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Section 1001


STANDARD TORQUE SPECIFICATIONS


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TORQUE SPECIFICATIONS - DECIMAL HARDWARE

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphities, Molydisulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts, and Studs	
	
Size	Newton metres
1/4 inch	10 to 12
5/16 inch	21 to 24
3/8 inch	38 to 43
7/16 inch	61 to 69
1/2 inch	94 to 104
9/16 inch	132 to 149
5/8 inch	183 to 210
3/4 inch	325 to 370
7/8 inch	530 to 595
1.0 inch	790 to 890
1-1/8 inch	980 to 1100
1-1/4 inch	1385 to 1555
1-3/8 inch	1810 to 2030
1-1/2 inch	2400 to 2700

Grade 8 Bolts, Nuts, and Studs	
	
Size	Newton metres
1/4 inch	15 to 16
5/16 inch	30 to 34
3/8 inch	54 to 60
7/16 inch	86 to 97
1/2 inch	132 to 149
9/16 inch	191 to 213
5/8 inch	260 to 293
3/4 inch	480 to 515
7/8 inch	745 to 835
1.0 inch	1120 to 1280
1-1/8 inch	1585 to 1785
1-1/4 inch	2215 to 2235
1-3/8 inch	2930 to 3295
1-1/2 inch	3895 to 4375


NOTE: Use thick nuts with Grade 8 bolts.

TORQUE SPECIFICATIONS - METRIC HARDWARE


Use the following torques when specifications are not given.

These values apply to fasteners with both coarse and fine threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or Molydisulfide grease or oil is used. Use of a click type torque wrench, or better is required.

Grade 8.8 Bolts, Nuts, and Studs

	
Size	Newton metres
M4	3 to 4
M5	5 to 6
M6	10 to 11
M8	23 to 26
M10	46 to 51
M12	80 to 90
M14	128 to 145
M16	200 to 220
M20	400 to 450
M24	690 to 780
M30	1375 to 1545
M36	2400 to 2700

Grade 10.9 Bolts, Nuts, and Studs

	
Size	Newton metres
M4	5 to 6
M5	8 to 9
M6	14 to 15
M8	33 to 37
M10	65 to 74
M12	114 to 128
M14	183 to 205
M16	285 to 320
M20	555 to 620
M24	955 to 1075
M30	1900 to 2140
M36	3315 to 3730

Grade 12.9 Bolts, Nuts, and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

37 Degree Flare Fitting			
Nom. SAE Dash Size	Tube OD/Hose ID	Thread Size	Newton metres
-2		5/16 - 24	8 to 9
-3		3/8 - 24	11 to 12
-4	6.4 mm	7/16 - 20	14 to 16
-5	7.9 mm	1/2 - 20	18 to 21
-6	9.5 mm	9/16 - 18	27 to 33
-8	12.7 mm	3/4 - 16	46 to 56
-10	15.9 mm	7/8 - 14	77 to 85
-12	19.0 mm	1-1/16 - 12	107 to 119
-14	22.2 mm	1-3/16 - 12	127 to 140
-16	25.4 mm	1-5/16 - 12	131 to 156
-20	31.8 mm	1-5/8 - 12	197 to 223
-24	38.1 mm	1-7/8 - 12	312 to 338

Straight Threads with O-ring			
Nom. SAE Dash Size	Tube OD/Hose ID	Thread Size	Newton metres
-2		5/16 - 24	8 to 9
-3		3/8 - 24	11 to 12
-4	6.4 mm	7/16-20	20 to 25
-5	7.9 mm	1/2-20	27 to 33
-6	9.5 mm	9/16-18	43 to 54
-8	12.7 mm	3/4-16	73 to 90
-10	15.9 mm	7/8-14	100 to 124
-12	19.0 mm	1-1/16-12	138 to 173
-14	22.2 mm	1-3/16-12	173 to 216
-16	25.4 mm	1-5/16-12	203 to 253
-20	31.8 mm	1-5/8-12	308 to 357
-24	38.1 mm	1-7/8-12	492 to 542

Split Flange Mounting Bolts	
Size	Newton metres
5/16-18	20 to 27
3/8-16	27 to 34
7/16-14	47 to 61
1/2-13	74 to 88
5/8-11	190 to 203

O-Ring Face Seal End				O-Ring Boss End Fitting or Lock Nut	
Nom. SAE Dash Size	Tube OD	Thread Size	Newton metres	Thread Size	Newton metres
-4	6.4 mm	9/16-18	23 to 26		
-6	9.5 mm	11/16-16	34 to 40	9/16-18	48 to 54
-8	12.7 mm	13/16-16	52 to 57	3/4-16	70 to 78
-10	15.9 mm	1-14	81 to 90	7/8-14	102 to 114
-12	19.0 mm	1-3/16-12	117 to 128	1-1/16-12	142 to 160
-16	25.4 mm	1-7/16-12	152 to 174	1-5/16-12	237 to 254
-20	31.8 mm	1-11/16-12	179 to 201		
-24	38.1 mm	2-12	213 to 235		