

Plant Hazard & Risk Assessment

Equip Category: Earthmoving

Make/Model: Caterpillar 247B Skid Steer Loader

Equipment Type: Skid buckets

Hazards	Risk	Risk	Risk Control Measures	Res	Who is responsible?
Against each task list the hazards that could cause injury when the task is performed	yes/no	Score	List the control measures required to eliminate the risk of injury arising from the identified hazard.	Score	Person responsible for control measure

Can anyone be injured by

(a) uncontrolled or unexpected movement of the plant or its load?	Yes	21	Warning in O&M manual and decal in cabin not to operate machine unless you have read and understood O&M Manual safety section Warning in O&M manual and decal on mud guard "No clearance for person in this area when machine turns" Machine fitted with steering frame locks to be used when personal need to enter the articulation area as specified in O&M manual "operation section" O&M manual contains comprehensive section on crushing prevention & cutting prevention Machine is fitted with a battery disconnection switch Machine is fitted with headlights, brakelights, blinkers and an audible reversing alarm All operating controls have their position and function detailed in the O&M manual in the operation section Controls have their functions labelled	5	Operator
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(b) Lack of capacity for the plant to be slowed, stopped or immobilised?	Yes	21	Machine is fitted with a park brake Machine is fitted with a battery disconnect switch Park brake can be used if service brakes fail Warning "Block machine to prevent movement before releasing the brakes" and instructions in O&M manual on towing and transportation of machine operation section Maintenance section of O&M manual outlines regular tests for brakes (park and service) indicators and gauges and brake pad check.	5	operator serviceman supplier
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(c) The plant tipping or rolling over?	Yes	21	Warning in O&M manual and decal in cabin not to operate machine unless you have read and understood O&M manual safety section Warning in O&M manual and decal on back of cab "structural damage, an overturn or improper repair can impair structures protection capability. Do not weld or drill holes in this structure" Operator must make sure seatbelt and mounting are in good condition as specified in the safety section of the O&M manual Guidelines on machine operation on various surfaces and loading in O&M Manual Machine is fitted with alternate exit through the rear window Machine is fitted with a certified roll over protection structure O&M manual details correct operating and loading methods in the operation section Machine fitted with a seat belt.		Operator Supplier
(d) Parts of the plant collapsing	yes	21	Warning in O&M manual and decal on rear frame "install dump body prop before working under raised dump body" Warning in O&M manual and decal on mud guard "the machine must be on hard level ground with the frame blocked and pressure relieved, see service manual for correct procedures" Warning in O&M manual and decal on front suspension accumulator indicating parts can separate with explosive force if proper care is not used during disassembly Warning in O&M manual and decal near cab lift pump "install cab prop pin before working under raised cabin" Warning in O&M manual to "keep all personnel clear of the machine until the suspension has been lowered" Operator to perform a walk around inspection	5	Serviceman Supplier
(e) Coming in contact with moving parts of the plant during testing, inspection, operation, maintenance, cleaning or repair ?	Yes	21	Warning in O&M manual and decal in cabin not to operate machine unless you have read and understood the O&M manual	5	Serviceman Supplier

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Cont...			Warning in O&M manual to attach a "Do not operate" tag to controls before maintenance Machine is fitted with a park brake Machine is fitted with a battery disconnect switch Machine fitted with steering frame locks to be used when personnel need to enter the articulation area as specified in the O&M manual Crushing prevention & cutting prevention in safety section of O&M manual		
(f) Being thrown off or under the plant	Yes	21	Machine is fitted with seatbelts O&M manual says to fasten seat belts securely operator and passenger	5	Operator Supplier
(g) Being trapped between the plant and materials or fixed structures	Yes	21	Machine is fitted with a reversing alarm to warn bystanders Site traffic management plan put in place	5	Supplier Site foreman

Can anyone be cut, stabbed, punctured or struck due to:

	Yes	24	O&M manual contains comprehensive section on crushing prevention and cutting prevention Operator must make sure no one is around or under the machine and that there is no personnel in the area as specified in the safety section of O&M manual	8	Operator Serviceman
(a) coming in contact with sharp or flying objects? tyre inflation	Yes	24	Servicing tires and rims can be dangerous only trained personnel that use proper tools and proper procedures should perform this maintenance When you inflate a tyre stand behind the tread and use a self attaching chuk	5	Operator Serviceman Tyre fitter
(b) Coming in contact with moving parts of the plant during testing, inspection, operation, maintenance, cleaning or repair of the plant?	Yes	24	Warning in O&M manual and decal in cabin not to operate machine unless you have read and understood O&M manual Warning in O&M manual to attach "do not operate" to controls before maintenance Machine is fitted with a park brake Machine is fitted with a battery disconnect switch Machine is fitted with steering frame locks to be used when personnel need	5	Operator Serviceman Transport operator

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Cont...			to enter the articulation are as specified in O&M manual		
			Crushing prevention and cutting prevention in safety section of O&M manual		

(c) the plant, parts of the plant or work pieces disintegrating?	Yes	17	operators responsibility to keep the machine in well-maintained condition Operator to preform a walk around inspection as outlined in O&M manual for early identification of any damage, excessive wear etc that could create a hazardous situation	5	Operator
(d) Work pieces being ejected	Yes	17	O&M manual instructs operator is to ensure that all personnel are at a safe distance	5	Operator Site foreman
(e) The mobility of the plant	Yes	24	Warning in O and M Manual and decal in cabin not to operate machine unless you have read and understood the O&M manual Machine is fitted with a park brake Machine fitted with front windscreen washers Machine is fitted with headlights, brakelights, revolving beacon and audible reversing alarm	5	Supplier Operator Site Foreman
(f) Uncontrolled or unexpected movement of the plant	Yes	24	Warning in O and M Manual and decal in cabin not to operate machine unless you have read and understood O&M manual Machine is fitted with a battery disconnect switch Machine is fitted with headlights and an audible reversing alarm All operating controls have their position and function detailed in the O&M manual in the oprtaing section Controls have their functions clearly labeled	5	Operator

Can anyones body parts be sheared between two parts of the plant or a work piece or structure?	Yes	24	Warning in O and M manual and decal on rear frame "Install dump body prop before working under raised dump body" Warning in O and M Manual and decal on mud guard "No clearance for	5	Operator Serviceman
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Cont...			person in this area when machine turns" Machine fitted with steering frame locks to be used when personnel need to enter the articulation area as specified in the O&M manual Warning in the O and M manual and decal on mud guard "The machine must be on a hard level ground with the frame blocked and pressure relieved, see service manual for correct procedures" Warning in O and M Manual and decal near cab lift pump "install cab prop before working under raised cabin" Operator must make sure that no one is on , under or around the machine and that no personnel are in the area as specified in the safety section of the O&M manual		
Can anyone be burnt due to contact with moving parts or surfaces of the plant, or material handled by the plant	Yes	21	Burn prevention section in O and M Manual covers coolant, oils and batteries - what injury can result and how to prevent injury Machine fitted with heat shield around turbo charger Perforated mesh around muffler	2	Operator Serviceman

Can anyone be struck by moving objects due to

(a) uncontrolled or unexpected movement of the plant or materials handled by the plant	Yes	22	Warning in O and M Manual and decal in cabin not to operate machine unless you have read and understood the O&M manual Warning in O&M manual and decal on rear frame "install dump body prop before working under raised dump body" Warning in O and M Manual and decal on mud guard "No clearance for person in this area when machine turns" Warning in O and M Manual and decal on mud guard "This machine must be on a hard and level surface with the frame blocked and pressure relieved" Operator must make sure that no one is under or around the machine and that no personnel is in the area Machine is fitted with a battery disconnect switch Machine is fitted with headlights, flashing beacon and an audible reversing alarm	5	Operator Site foreman
(b) The plant, parts of the plant or work pieces disintegrating	Yes	24	Warning in O and M Manual and decal on front suspension accumulator indicating parts can separate with the explosive force if proper care is not used during disassembly.	5	Serviceman

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(c) Work pieces being ejected	Yes	24	O and M Manual instructs operator is to ensure all personnel are at a safe distance. Safe loading practices are also given	5	Operator Site Foreman
(d) Mobility of the plant	Yes	24	Warning in O and M Manual and decal in cabin not to operate machine unless you have read and understood the O&M manual Machine is fitted with a park brake Machine is fitted with front windscreen wipers/washers	5	Site foreman Operator

Can anyone come into contact with fluids under high pressure due to

(a) Plant failure or misuse of the plant	Yes	18	Warning in O and M Manual and decal on front suspension accumulator indicating parts can separate with explosive force if proper care is not used during disassembly Line tubes and hoses section in O and M Manual "Do not bend high pressure hoses. Do not strike high pressure hoses. Do not install bent or damaged lines, tubes or hoses" Operator to perform walk around inspection as outlined in the maintenance section of the O&M manual for early indication of damage, excessive wear etc		Operator Serviceman
(b) Servicing hydraulic system without relieving pressure?	Yes	21	Warning in O and M Manual and decal on mud guard "The machine must be on hard, level ground with the frame blocked and pressure relieved, see service manual Warning in O and M Manual and brake accumulators "High pressure cylinder. Do not remove parts until high pressure has been relieved" General hazard section in O and M manual warns high pressure fluid emitted from leak can cause tissue damage - leaks should be checked with a board	2	Serviceman Operator

Can anyone be injured by electric shock or burnt due to

(a) The plant contacting live electrical conductors	Yes	25	Warnings in Work Safety section of EMI safety manual Potential hazard should be identified in site hazard ID risk assessment and control	8	Operator Serviceman
(b) The plant working in close proximity to electrical conductors Cont...	Yes	25	Warnings in Work Safety section of EMI safety manual Potential hazard should be identified in site hazard ID risk assessment and control	8	Operator Serviceman
(c) Overload of electrical circuits	Yes	9	All circuits in Machine protected by fuses and circuit breakers	1	Operator

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(d) Damage or poorly maintained electrical leads and cables	Yes	8	Operators responsibility to keep the machine in a well maintained condition. A walk around inspection of the machine should e performed as outlined in the O&M manual for early indication of damage, excessive wear etc that could create a hazardous situation	5	Operator
(e) Damaged electrical switches	Yes	8	Operators responsibility to keep the machine in a well maintained condition. A walk around inspection of the machine should e performed as outlined in the O&M Manual for early detection of any damage, excessive wear etc that could create a hazardous situation	5	Operator
(f) Lack of isolation procedures	Yes	17	Battery isolator switch is provided As per O and M Manual, turn off isolator switch before servicing electrical system or any other components on the machine Also refer to "Perform maintenance safely" section of the maintenance manual	5	Operator Serviceman

Can anyone be injured by explosion of gases, vapours, liquids, dusts or other substances, triggered by the operation of the plant or by material handled by the plant or by human factors

(a) explosion of the battery	Yes	21	Warning decal positioned near battery and in O&M manual. Procedure "Operation" section of O&M manual outlining safe jump starting Techniques. Do not smoke in vicinity of battery Warnings in 'Perform Maintenance Safely' section of EMI safety manual	5	Serviceman Site foreman
(b) Explosion of tyres	Yes	24	Explosion prevention section of the O&M Manual outlines causes on the explosion and methods of prevention. Servicing tyres and rims can be dangerous. Only trained personnel that use proper tools and proper procedures should perform this maintenance.	5	Serviceman Site foreman

Can anyone using the plant, or in the vicinity of the plant slip, trip or fall due to

(a) Uneven or slippery work surfaces	Yes	17	Non slip surfaces are provided on all steps and surfaces where access is during operation and/or maintenance All surfaces are to be kept clean	5	Operator
(b) Poor housekeeping eg swarf in the vicinity of the plant, spillage not cleaned up? Cont...	Yes	17	Operator must ensure there are no unsecured items in cab that could be hazardous in the event of a rollover Site house keeping issues are operator when he/she is completing the site hazard ID , risk assessment and control process	5	Operator
(c) Obstacles being placed in the vicinity of the plant?	Yes	18	Responsibility of the operator when he/she is completing the site hazard ID, risk assessment and control process	5	Operator Site foreman

Can anyone fall from a height due to

(a) lack of proper stairs?	Yes	18	Grab rails/handles and slip resistant steps provided at all approved access	5	Supplier
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Cont...			points. Use three point contact when mounting/dismounting as per O&M Manual		Operator
(b) Unprotected holes, penetrations or gaps?	No				
(c) Poor floor or walking surfaces, such as the lack of a slip resistant surface?	Yes	17	Slip resistant surfaces on all approved access points and service platforms	2	Supplier
(d) Steep walking surfaces?	No				
(e) Collapse of the supporting structure?	No				

Can anyone be injured due to

(a) Poorly designed seating?	Yes	12	Seat has adjustments for horizontal movement, seat cushion tilt, seat back tilt, weight control, damper control, lumbar adjustment, armrest adjustment and extension for back rest	2	Supplier
(b) Repetitive body movement?	No				
(c) Constrained body posture or the need for extensive effort?	Yes	12	Machine fitted with steering column tilt control - adjust reach and angle	2	Supplier
(d) Design deficiency causing mental or psychological stress?	No				
(e) Inadequate or poorly placed lighting?	No				
(f) Lack of consideration given to human error or human behaviour?	Yes	22	Operation of the machine by component personnel only	3	Site foreman
(g) Mismatch of the plant with human traits and natural limitations?	Yes	22	Operation of the machine by component personnel only	3	Site foreman
Can anyone be suffocated due to lack of oxygen, at atmospheric contamination	No				
Can anyone come into contact with objects at high temperatures? Engine, exhaust etc	Yes	18	"Burn prevention" section of O and M Manual	5	Serviceman
Can anyone be injured by fire	Yes	22	"Fire prevention and explosion protection" section in O&M manual Fire extinguishers fitted in operator cab	5	Supplier
Can anyone suffer ill-health due to exposure to high or low temperatures?	Yes	8	All machines have heaters, and air conditioning is an option	2	Supplier Operator

Can anyone be injured or suffer ill health from exposure to

(a) chemicals	Yes	13	Warning decals on batteries and also in the "Safety" section of O&M manual	5	Supplier Serviceman Operator
(b) toxic gases or vapours?	Yes	13	Warning decals on batteries and also in the "Safety" section of O&M manual	5	Supplier Serviceman
(c) Fumes	Yes	18	Machines are fitted with a sealed cab with filtration, door to be closed during operation	2	Operator Serviceman

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(d) Dust?	Yes	18	New machines have no asbestos components Warnings in "Asbestos information" section of O&M manual and also in "Perform maintenance safely" section of the EMI manual Part of site hazard ID, Risk assessment and Control process	2	Operator Serviceman
(e) Noise?	Yes	18	Noise levels are listed in the O&M manual in the machine	2	Operator
(f) Vibration	No				
(g) Radiation	No				
Can anyone be injured due to insufficient provision of operation and safety information S	Yes	22	Detailed CAT operation and maintenance manual which is tethered to the seat. Warning decal in cabin "Do not operate or work on this machine unless you have read and understood the instructions and warnings in the operation and maintenance guides	9	Supplier Operator Site foreman