| TOYOTA MATERIAL HANDLING | HAZARD and RISK ASSESSMENT | TOYOTA HUSKI 5 SERIES SKID STEER LOADER (SSL). | | | |
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| | TOYOTA MATERIAL HANDLING | Revision 5 | Review Date 1/4/2020 | Authorised S. Palmer | Page 1 of 12 |

**Description:** **Toyota 5 Series Huski Skid Steer Loader. 5SDK5, 5SDK8, 5SDK9, 5SDK10 and 5SDK11.**

**Material Structure:** A steel framed, internal combustion powered with a hydraulic boom arm which allows the operator to sit within an operator compartment and protected overhead by a fixed guard.




5SDK9 shown.

| Design Feature / Utilisation | Assessment Comments | Major Hazard/s | Risk Rating: |
|---|---|---|---|
| **Attachments** Standard Bucket and 4 in 1 Bucket | ▪ The Toyota Huski SSL is rated with a standard dirt bucket. The rated operating capacity (ROC) with the standard bucket varies depending on the model. When a non-standard 4 in 1 bucket is attached, the safe maximum rated operating capacity would need to be determined. Below is a guide on rated operating capacity of a 4 in 1 bucket. Note this will need to be confirmed as the weight of 4 in 1 buckets varies between different manufacturers.<br>Typical weights of buckets and estimated rated operating capacity (ROC).<br>Model — Standard Dirt Bucket — 4 in 1 Bucket — Estimated ROC with 4 in 1<br>5SDK5 — 108kg — 191kg — 347kg<br>5SDK8 — 132kg — 283kg — 499kg<br>▪ 5SDK9 — 132kg — 283kg — 579kg<br>5SDK10 — 136kg — 348kg — 588kg<br>5SDK11 — 136kg — 348kg — 688kg<br>▪ Operator's/owner's to conduct further risk assessment specific to their circumstances (e.g. attachment used, application and work environment).<br>▪ The bucket is attached and released manually by inserting/removing a pin between the bucket and boom arm. Caution needs to be taken to ensure the pin is correctly in place prior to operation to prevent the bucket falling off during operation causing numerous hazards.<br>▪ When a Tine attachment is fitted and utilised with a Huski SSL it must comply with the relevant Forklift standards.<br>Such use is outside of the scope of this assessment.<br>▪ Additional mesh on the rear of the bucket is an option available to reduce the possibility of the load falling onto the cabin and operator during maximum lift of the boom arm. | ▪ **Tipping** by overloading Huski SSL with bucket & load.<br>▪ **Attachment failure** due to misuse or mismatch with Huski SSL model.<br>▪ **Rolling** due to overloading or misuse of Huski SSL.<br>▪ **Crush hazard** from bucket/load falling – if not correctly attached. | ▪High<br>▪High<br>▪Extreme<br>▪Extreme |

| Design Feature / Utilisation | Assessment Comments | Major Hazard/s | Risk Rating: |
|---|---|---|---|
| **Noise** | ▪ A formal noise assessment has been carried out. However sustained and intermittent noise emissions can be an issue. Personal protective equipment such as earplugs and earmuffs would assist in protecting Operators.<br>▪ Some models are available with an enclosed air-conditioned cabin which can reduce engine and external noise into the cabin. However, the Operator must increase awareness of external hazards during operation such as vehicles and other people. | ▪ **Hearing injury** from prolonged, high volume noise exposure.<br>▪ **Collision hazard** if Operator not aware of approaching vehicles or people.<br>▪ **Crush hazard** to people if cannot be seen or heard by Huski SSL Operator. | ▪ High<br>▪ High<br>▪ High |
| **Seating** | ▪ The seat in all of the Huski SSL models adjusts back and forward to adjust the operating leg space and access to the foot pedals. There is back tilt adjustment. Long hours of use without breaks is not recommended.<br>▪ All Huski SSL are fitted with a suspension seat. This assists to reduce the shock through the seat. | ▪ **Back injury** due to jarring from Huski SSL motion.<br>▪ **Back injury** due to prolonged work without breaks. | ▪ Moderate<br>▪ Moderate |
| **Ergonomics** | ▪ Moderate push / pull force is required to operate levers due to design that reduces vibration on the 5SDK8, 5SDK9, 5SDK10 and 5SDK11.<br>▪ Always use hand grips when raising the cabin and do as slowly as the cabin may bounce back when it is fully open. However, on lowering the cabin, gravity causes it to close quickly with force causing a possible crush hazard.<br>▪ On the 5SDK8, 5SDK9, 5SDK10 and 5SDK11 the steering and control levers are hydraulic pilot control operated.<br>▪ On the 5SDK5 the levers are mechanically operated. | ▪ **Crush hazard**<br>▪ **Manual handling** hazard related to prolonged, repetitive use of driving levers. | ▪ High<br>▪ Low |
| **Vibration** | ▪ Constant vibration is experienced by the Huski SSL Operator on the 5SDK5 during use through the steering levers, seat and the pedals.<br>▪ Use of personal protective equipment in the way of gloves will assist to reduce the vibration to the Operator. | ▪ **Manual handling** hazard related to prolonged, repetitive use of vibrating driving levers. | ▪ Moderate |

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|---|---|---|---|
| **Access/Egress for operation** | ▪ All Toyota Huski SSL models are accessed by the Operator from the front of the machine over the bucket attachment, requiring 3 steps up into the cabin. There are grip handles on both sides of the cabin to assist entry and exit and these should be used at all times when entering and exiting the Huski SSL.<br>▪ Conversely the Huski SSL machines are exited in reverse, with the Operator turning around within the cabin and stepping backwards down over the bucket attachment.<br>▪ Always use the grab handles to provide body support when entering and exiting the cabin. Use two hands and one foot or one hand and two feet when entering and exiting the cabin.<br>▪ Ensure that footwear and entry foot areas are clean and free of oil, grease, dirt or debris.<br>▪ The Operator's Manual and Video indicates not to access or egress the machine whilst the boom arm is raised.<br>▪ Never attempt to leave a Huski SSL until it has stopped and the parking brake has been applied and remove the key to stop unauthorised use.<br>▪ Should there be a mechanical failure and the machine needs to be exited whilst the boon is elevated refer to the Operator's Manual for instruction on how to support the boom to help prevent the boom arm from lowering.<br>▪ A rear window is standard for all models and is equipped with a quick release safety pull for emergency access/egress. For those Huski SSL equipped with a cabin a hammer is supplied to break the glass. | ▪ **Slip hazard**<br>▪ **Fall hazard**<br>▪ **Crush hazard** due to falling boom/bucket/ load. | ▪ Moderate<br>▪ Moderate<br>▪ Extreme |

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|---|---|---|---|
| **Access/Egress for maintenance** | ▪ In all the Huski SSL models the cabin tilts up and latches back to allow engine access. Always use the assist grips when raising the cabin. Refer to the Operator's Manual for instructions. Remove the pre-cleaner before raising the cabin.<br>▪ Support the rear of the Huski SSL to ensure it does not tip backwards when the cabin is raised.<br>▪ On the Huski SSL with a cabin, the air conditioning condenser must first be tilted away.<br>▪ In all models the radiator can be accessed from a rear swing out door. The door is weighted for overall machine stability and has a pull out latch to prevent it from closing accidentally on the Operator.<br>▪ In all models the oil cooler can be accessed by lifting the engine hood.<br>▪ The radiator and oil cooler become hot during operation and may pose a burn hazard.<br>▪ Do not operate the Huski SSL when the rear door is left open.<br>▪ To raise the vehicle, a suitable jack and stand is required. Refer to the Operators Manual for instructions | ▪ **Burn, amputation, laceration, crush or impingement hazard** if body parts caught in engine / fan during access.<br>▪ **Crush hazard** due to rear door crushing.<br>▪ **Burn hazard** from radiator / oil cooler.<br>▪ **Crush hazard** due to failure of jacking system.<br>▪ **Tipping hazard** if cabin tilted up without bucket attachment.<br>▪ **Crush hazard** due to cabin falling if not secured.<br>▪ **Manual handling** from awkward postures due to restricted engine access | ▪ High<br>▪ Low<br>▪ Moderate<br>▪ Extreme<br>▪ High<br>▪ High<br>▪ Moderate |
| **Lighting** | ▪ The Huski SSL are fitted with standard illuminated panel, interior light, front and rear lights and full road lighting kit. | | |
| **Visibility** | ▪ Operators need to be aware that "blind spots" do exist and take appropriate precautions.<br>▪ All Toyota Huski SSL models are fitted with a reverse alarm and reverse lights. | ▪ **Crush or collision hazard** | ▪ High |

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| **Control Panel Design** | ▪ The Control Panel is situated in front and overhead of the cabin seat. It is in easy view and reach of the Operator and contains a number of clearly indicated warning lights. | | |
| **Temperature** | ▪ Some models have the option of an enclosed, air-conditioned or heated cabin, so the temperature is adjustable and controlled. | | |
| **Ventilation emissions** | ▪ The Toyota Operator's manual specifies that the Huski SSL should not be started in a poorly ventilated area. Adequate ventilation is required during operation.<br>▪ Some models have the option of an enclosed, air-conditioned cabin, which can reduce dust and engine emissions from entering the Operators cabin.<br>▪ Toyota provide an option of fitting an exhaust filter to reduce the toxicity of exhaust emissions.<br>▪ The risk posed by emissions is dependent on the workspace, degree of ventilation and exhaust extraction system operating within the space. Specific risk assessment of each environment is required. | ▪ **Toxicity and breathing hazard** in certain work environments due to prolonged inhalation of dust and other particles and possible toxins. Also exhaust emissions if operated in an enclosed space. | ▪ High |
| **Machine rolling / tipping** | ▪ The features of the Huski SSL in combination with environmental factors such as ground gradient can put the Huski SSL at risk of roll-over and tipping.<br>▪ Do not use the Huski SSL machines on "steep slopes". The Warranty and Video indicate that "extra care" should be observed when using the Industrial Equipment on slopes, in wet weather or on wet or slippery surfaces. Seatbelts and seat-bar are standard on all models.<br>▪ Personal protective equipment in the way of hard hats may assist in protecting the Operator during roll-overs or tipping. | ▪ **Roll-over and tipping hazard** | ▪ Extreme |

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| **Engine** | ▪ Low gear<br>▪ Maximum speed for the Huski SSL machines ranges between 11-12 km/hr<br>▪ The engine automatically shuts down when the hydraulic oil temperature goes beyond 100°C. | | |
| **Warning Signs** | ▪ There are numerous warning and operating stickers within the Huski SSL cabin. These are a general guide and all Operators should refer to the Operator's Manual for detailed information on safe operation. | All hazards associated with misuse of the Huski SSL and attachments. Refer to other relevant sections for comments. | |
| **Fire / Burn** | ▪ Since the Huski SSL engines are diesel (there is no petrol option) this assists with reducing the fire hazard.<br>▪ Hydraulic systems drive the bucket and the transmission. The main hydraulic pressure is 14.7-18.6 MPa (2130-2700 psi), whilst the hydrostatic pressure runs at 20.5-30.0 MPa (3000-4350 psi). Hydraulic oil leaking could cause serious burn injuries.<br>▪ Operators to check hose conditions prior to all operation.<br>▪ Ensure quick disconnect couplings are engaged correctly.<br>▪ When disconnecting quick disconnect couplings ensure pressure is relieved. | ▪ **Burn hazard** from fire and hydraulic system failure. | ▪ Moderate |
| **Lifting Points** | ▪ The Huski SSL is provided with approved lifting points. Refer to the Operators Manual for details.<br>▪ Inspect lifting points prior to lifting the Huski SSL. | ▪ **Tipping hazard** | ▪ Extreme |
| **Transportation** | ▪ When loading or unloading the Huski SSL for transport using ramps. Ensure ramps are sure and able to support the weight of the Huski SSL.<br>▪ Use a guide when loading and unloading and ensure they are well away from the operation.<br>▪ The Huski SSL is provided with approved tie-down / restraint points for transport. Refer to the Operators Manual for details. | ▪ **Roll-over and tipping hazard** from Huski SSL coming off the ramps or truck. | ▪ Extreme |

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| ***Safety Features***<br>▪ Pedal lock<br>▪ Key<br>▪ Operation switch<br>▪ Seat lock: 30 kg to activate<br>▪ Safety bar<br>▪ Safety belt lock<br>▪ Reverse lights<br>▪ Reverse alarm<br>▪ ROPS<br>▪ FOPS<br>▪ Raised apron<br>▪ Coloured warning lights on operation panel<br>▪ Horn | ▪ There is a range of safety features aimed at preventing the machine from being used without an Operator in the cabin and securely seated. These include operator in the seat, seat-bar down, door closed (if fitted) and then after the Huski SSL has been started the operator must press the "Operation Switch" to begin drive and hydraulic functions.<br>▪ When the safety bar is raised it engages a mechanical parking brake and pedal lock preventing the Huski SSL from being operated. Note: On Huski SSL fitted with "H" or ISO type control lever systems there is no foot pedals for controlling hydraulic functions for the boom and bucket control. These functions are integrated into the control levers.<br>▪ Also, the seat must have a continuous minimum weight of 30kg (2-3 second delay) in order for it to activate the solenoid which unlocks the pedals and allows hydraulic operation.<br>▪ Seatbelts are fitted as standard.<br>▪ The Toyota Huski SSL machines include roll-over protective structures (ROPS) and falling object protective structures (FOPS) which are tested to the relevant ISO standard 3471 and 3449.<br>▪ The (FOPS) is to Level1 Impact Protection. The definition in ISO 3449 is as follows *impact strength for protection from small falling objects (e.g. bricks, small concrete blocks, hand tools) encounted in operations such as high way maintenance, landscaping and other construction site services*.<br>▪ Toyota has a raised apron for the cabin in order to help prevent Operator's from using the Huski SSL with their legs exposed from the cabin.<br>▪ For Huski SSL with and enclosed cabin the door must be closed before drive or hydraulic operation can take place.<br>**Note:**<br>▪ Always apply the parking brake when exiting the Huski SSL.<br>▪ Always remove the key from the ignition to stop unauthorised operation when exiting the Huski SSL.<br>Ensure that counterweight is not removed or damaged. | **Crush hazard** if boom / load / bucket fell | ▪ High |

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| **Maintenance** | ▪ Toyota Braches and Dealers provide repair and maintenance service.<br>▪ Toyota's recommended maintenance schedule, based on hours of service, is specified within the Operator's Manual and Warranty for each model and includes information on periodic parts replacement and pre-operational check.<br>▪ Pre-Operational checks are demonstrated and discussed in the Toyota Skid Steer Safety Video.<br>▪ Daily cleaning after operating in harsh conditions.<br>▪ Inspect the (FOPS) and (ROPS) daily for damage and if damage do not use. | ▪ **Numerous hazards** related to failure of FOPS & ROPS & other safety systems if they are modified. | ▪ High |
| **Hazard to others** | ▪ Exposed moving parts such as the boom arm, attachments and load may place others at risk.<br>▪ Ensure others are clear of the Huski SSL during operation at all times. | ▪ **Crush or collision hazard** | ▪ High |
| **Environmental conditions** | ▪ Operators are advised to take extra care when operating Huski SSL's near power lines, near people or with corrosive or dangerous loads.<br>▪ All Operators need to comply with statutory requirements for operation of this category of plant. | ▪ **Collision hazard** if used on public roads or in low light conditions.<br>▪ **Roll-over and tipping hazard** if used in inappropriate conditions.<br>▪ **Fire/Electrocution hazard** | ▪ Extreme<br>▪ High<br>▪ Extreme |
| **Misuse / fluctuating operating conditions** | • Huski SSL is not to be operated on excessive gradients. For all other conditions, the Operator must assess the immediate work environment prior to operation.<br>• Operators to refer to the Manual for ascending and descending guidelines | ▪ **Collision hazard** if used on public roads or in low light conditions.<br>▪ **Roll-over and tipping hazard** if used in inappropriate conditions. | ▪ Extreme<br>▪ High |

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| **Competency of Operators & Training** | ▪ Huski SSL Operator licensing requirements vary in each state. Refer to state regulatory body to ensure Operators comply with relevant legislation for licensing, competency skills, assessment and training.<br>▪ Initial induction is available through the Dealer. Additional training may be available through external providers | ▪ **Collision hazard**<br>▪ **Roll-over and tipping hazard.** Various hazards resulting from misuse/inappropriate use of Huski SSL and attachments due to insufficient safety and operational training. | ▪ High<br>▪ High |
| **Documentation and Provision of information** | ▪ The Operator's Manual, Video and Warranty are available in English<br>▪ Ensure operators have read and understood the Operators Manual. | Various hazards resulting from misuse / inappropriate use of Huski SSL & attachments due to insufficient safety & operation information. | ▪ |

| Design Feature / Utilisation | Assessment Comments | Major Hazard/s | Risk Rating: |
|---|---|---|---|
| **Operators Video** | ▪ The Operator's Video outlines general hazards related to Huski SSL operation and advises that the Operator is required to conduct further hazard identification related to their own circumstances, application and working environment.<br>The Video also provides the following information:<br>▪ Pre-operation check.<br>▪ Maintenance schedule (as indicated in the Operator's Manual) with annual service by Toyota Dealer.<br>▪ 650kg safe working load (4SDK8) – this is only accurate for the Standard Bucket attachment (115kg). Most other attachments weigh well in excess of 100kg and therefore reducing the safe rated operating capacity.<br>▪ Outlines safety features including to always wear the seat belt.<br>▪ Demonstrates possible tip hazards on slopes.<br>▪ Outlines the requirement for appropriate Operator's License.<br>▪ Indicates the overhead guard is not to be modified.<br>▪ Advises to raise Huski SSL on the correct capacity jack.<br>▪ Never place body parts underneath the Huski SSL. (However this cannot be avoided where access is required underneath the Huski SSL during maintenance/repair for which an appropriate jack and stand is recommended).<br>▪ Highlights dangers to others.<br>▪ Caution the Operator to keep within the Manufacturer's instructions with regards to slopes.<br>▪ Clearance heights required from electricity poles.<br>▪ Advice to check headlights prior to use at night. | Various hazards resulting from misuse / inappropriate use of Huski SSL & attachments due to insufficient safety & operation information. | |

**Review of documentation:**

Toyota Operator's Manual 30-5SDK5, 30-5SDK8, 30-5SDK9, 30-5SDK10 and 30-5SDK11.

Toyota Industrial Equipment Warranty and Conditions

Toyota Industrial Equipment Repair Manual Models 30-5SDK5, 30-5SDK8, 30-5SDK9, 30-5SDK10 and 30-5SDK11.

Toyota New Model Features Skid Steer Loader 30-5SDK5, 8, 9, 10 and 11.

Toyota Guide To New Product 5SDK Series Skid Steer Loader 5SDK 430 to 900kg.

Toyota Industrial Equipment Parts Catalogue

Application for Toyota Skid Steer Loader

Toyota Skid Steer Safety Video

**References**


Victorian Occupational Health and Safety Act 2004.

Victorian Occupational Health and Safety (Plant) Regulations 1995.

Model Work Health and Safety (WHS) Act 2011.

Model Work Health and Safety (WHS) Regulation 2011.

Guide for importing and supplying safe equipment July 2014.

International Standards Organisation, *ISO 2867:1994: Earth-moving machinery Earth-moving machinery — Access systems.*

International Standards Organisation, *ISO 3449:1992: Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements.*

International Standards Organisation, *ISO 3471:1994: Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements.*

International Standards Organisation, *ISO 6683:2005: Earth-moving machinery - Seat belts and seat belt anchorages - Performance requirements and tests.*

*SAE J 1388:2003 Surface vehicle standard - Personnel Protection - Skid Steer Loaders.*