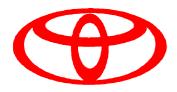


TOYOTA MANTARIAL	Revision	Review Date	Authorised	Page 1 of 9
HANDLING	6	1 April 2018	S. Palmer	

Description: Toyota 4 Series Skid Steer Loader. 4SDK4, 4SDK5, 4SDK8 and 4SDK10.

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

Design Feature / Utilisation	Assessment Comments	Major Hazard/s	Risk Rating:
Attachments Standard Bucket and 4 in 1 Bucket	 Toyota SSL are 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. Typical weights of buckets and estimated rated operating capacity. Model Standard Dirt Bucket 4 in 1 Bucket Estimated ROC with 4 in 1 4SDK4 60kg 150kg 230kg 4SDK5 80kg 200kg 310kg 4SDK5 80kg 200kg 680kg Operator's/owner's to conduct further risk assessment specific to their circumstances (e.g. attachment used, application and work environment). 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. When a Tine attachment is fitted and utilised with an SSL it must comply with the relevant Forklift standards. Such use is outside of the scope of this assessment. Additional mesh on the rear of the bucket is an option available to reduce the possibility of the load falling onto the cabin during maximum lift of the boom arm. 	 Tipping by overloading SSL with bucket & load. Attachment failure due to misuse or mismatch with SSL model. Rolling due to overloading or misuse of SSL. Crush hazard from bucket/load falling – if not correctly attached. 	 High High Extreme Extreme



HAZARD and RISK ASSESSMENT

TOYOTA MANTARIAL

Revision

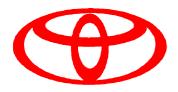
TOYOTA (SSL) SKID STEER LOADER 4 SERIES

Authorised

		HANDLING	6	1 April 2018		S. Palmer	Page	2 of 9
Design Feature / Utilisation	Assess	sment Comments			M	ajor Hazard/s		Risk Rating
Noise	how Pers in pl Som redu mus	ormal noise assessment was o vever sustained and intermitter sonal protective equipment su rotecting Operators. ne models come with an enclo uce engine and external noise st increase awareness of exter icles and other people.	nt noise emissio ch as earplugs a sed air-condition into the cabin.	ns can be an issue. and earmuffs would assist ned cabin which can However, the Operator	•	Hearing injury from prolonged, high von noise exposure. Collision hazard not aware of approvehicles or people Crush hazard to perform SSL Operator.	olume if Operator oaching e. people if	 High High High
Seating	ope adju ■ The seat	e seat in all of the SSL mode rating leg space and access ustment. Long hours of use wi e standard seats do not have s t (forklift type) can be fitted to DK10. This assists to reduce th	to the foot ped thout stretch bre uspension, but a the larger SSL n	als. There is no back till eaks is not recommended. an after market suspension nodels, that is 4SDK8 and	-	Back injury due t from SSL motion. Back injury due t prolonged work wi back support.	0	 Moderate Moderate
Ergonomics	 Moc dam The and lowe 	derate push / pull force is represented by the provident of the provident	equired to oper f the weight of th , requiring a mod	ate driving levers due to ne cabin on the 4SDK5 derate force. However, on	•	Crush hazard Manual handling related to prolonge repetitive use of d levers.	ed,	 High Low
Vibration	 Con the The reduing Use 	nstant vibration is experienced seat and the steering levers. ASDK models have vibration ucing the degree of vibration. of personal protective equipm uce the vibration to the Operation	tion dampeners	on the steering levers		Manual handling related to prolonge repetitive use of v driving levers.	ed,	 Moderate

Review Date

Page 2 of 9



HAZARD and RISK ASSESSMENT

Revision

TOYOTA MANTARIAL

TOYOTA (SSL) SKID STEER LOADER 4 SERIES

Authorised

			Revision	Review Bate		Additioniood		age 3 of 9	
		HANDLING	6	1 April 2018		S. Palmer	l dge		
Design Feature / Utilisation	Assess	sment Comments			М	ajor Hazard/s		Risk Rating:	
Access/Egress for operation	mac The and Cor turn buc The mac Sho whil inse The and A re	Toyota SSL models are access chine over the bucket attachner are are grip handles on both s I these should be used at all time oversely the SSL machines and sing around within the cabin sket attachment. The Operator's Manual and Video chine whilst the boom arm is ra- build there be a mechanical far list the bar is up there are 2 arted from within the cabin to h location of hydraulic pipes to 4SDK5 poses a trip hazard du ear window is an option for all ro- ck release safety pull for emerge	nent, requiring 3 sides of the cab nes when enteri re egressed in r and stepping b indicate not to a aised. ilure and the ma pins (4SDK4 h elp prevent the l o the bucket att iring access/egr models and if pre	B steps up into the cabin. in to assist entry and exit ng and exiting the SSL. reverse, with the Operator backwards down over the access or egress the achine needs to be exited as one pin) that must be boom arm from lowering. achment in Model 4SDK4 ess to the cabin. essent, is equipped with a		Slip hazard Fall hazard Crush hazard due boom/bucket/ load	0	 Moderate Moderate Extreme 	
Access/Egress for maintenance	allo In S allo mod pos In a out out The	SSL models 4SDK5 and 4SD w engine access. SSL models 4SDK4 and 4SD w access to the engine and dels is conducted in more cor tures. Il models the radiator and oil of door. The door is weighted for latch to prevent it from closing a radiator and oil cooler becom n hazard.	K10 the seat til hydraulics. Eng nfined space rec cooler can be ac or overall machi accidentally on	ts up and latches back to ine maintenance in these quiring sustained awkward ccessed from a rear swing ne stability and has a pull the Operator.	-	Burn, amputation laceration, crush impingement haz body parts caught fan during access Crush hazard due door crushing. Burn hazard from oil cooler. Crush hazard due of jacking system.	or card if in engine / e to rear n radiator / e to failure	 High Low Moderate Extreme 	

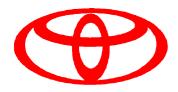
Review Date

Page 3 of 9



		TOYOTA MANTARIAL HANDLING	Revision 6	Review Date 1 April 2018	Authorised S. Palmer	Page	4 of 9	ı
Design Feature / Utilisation	Assess	sment Comments			Major Hazard/s		Risk Rating	j:

Utilisation			inter rating.
Access/Egress for maintenance continued	 In 4SDK10 the fan is more exposed than other models causing an increased hazard of laceration and amputation. Toyota specifies not to operate the vehicle when the rear grill is left open. To raise the vehicle, a suitable jack and stand is required. 	 Tipping hazard if cabin tilted up without bucket attachment. Crush hazard due to cabin falling if not secured. Manual handling from awkward postures due to restricted engine access. 	 High High Moderate
Lighting	 The SSL are fitted with standard: illuminated panel, front and rear lights and full road lighting kit. 		
Visibility	 Operators need to be aware that "blind spots" do exist and take appropriate precautions. All Toyota SSL models are fitted with a reverse alarm and reverse lights. 	 Crush or collision hazard 	▪ High
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 SSL should not be started in a poorly ventilated area. Adequate ventilation is required during operation. Some models have the option of an enclosed, air-conditioned cabin, which can reduce dust and engine emissions from entering the Operators cabin. Toyota provide an option of fitting an exhaust filter to reduce the toxicity of exhaust emissions. 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

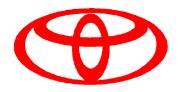


HAZARD and RISK TOYOT ASSESSMENT

TOYOTA (SSL) SKID STEER LOADER 4 SERIES

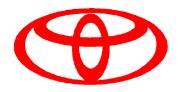
TOYOTA MANTARIAL HANDLINGRevision 6	Review Date 1 April 2018	Authorised S. Palmer	Page 5 of 9
---	-----------------------------	-------------------------	-------------

Design Feature / Utilisation	Assessment Comments	Major Hazard/s	Risk Rating:
Machine rolling / tipping	 The features of the SSL in combination with environmental factors such as ground gradient can put the SSL at risk of roll-over and tipping. Do not use the 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 are standard on all models. 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 4SDK4 at extra risk of roll- over and tipping due to wheel base to height dimensions. 	Extreme
Engine	 Low gear Maximum speed for the SSL machines ranges between 9-11 km/hr The engine automatically shuts down when the hydraulic oil temperature goes beyond 90°C. 		
Warning Signs	 There are numerous warning and operating stickers within the SSL cabin. These are a general guide and all Operators should refer to the Operator's Manual and Video for detailed information on safe operation. 	All hazards associated with misuse of the SSL and attachments. Refer to other relevant sections for comments.	
Fire / Burn	 Since the SSL engines are diesel (there is no petrol option) this assists with reducing the fire hazard. Hydraulic systems drive the bucket and the transmission. The hydraulic pressure is 11-13.7 mpa (1600-2000 psi), whilst the hydrostatic pressure runs at 27.6 mpa (4000psi). Hydraulic leaking could cause serious burn injuries. Operators to check hose conditions prior to all operation. 	 Burn hazard from fire and hydraulic system failure. 	Moderate



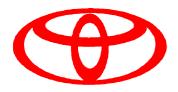
TOYOTA MANTARIAL	Revision	Review Date	Authorised	Page 6 of 9
HANDLING	6	1 April 2018	S. Palmer	

Design Feature / Utilisation	Assessment Comments	Major Hazard/s	Risk Rating:
 Safety Features Pedal lock Seat lock: 30 kg to activate Safety bar Safety belt lock Reverse lights Reverse alarm ROPS FOPS Raised apron Coloured warning lights on operation panel 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. When the safety bar is raised it engages a mechanical handbrake and pedal lock preventing the SSL from being operated. Note: The mechanical handbrake is not fitted to 4SDK4 and 4SDK10. Handbrake must be applied manually by the operator. 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. Seatbelts are fitted as standard. The Toyota 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. Toyota has raised the apron of the cabin in order to help prevent Operator's from using the SSL with their legs exposed from the cabin. Note: Always apply the parking brake when exiting the SSL. Always remove the key from the ignition to stop unauthorised operation when exiting the SSL. 	Crush hazard if boom / load / bucket fell.	 High
Maintenance	 Toyota Dealers provide repair and maintenance service. 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. Pre-Operational checks are demonstrated and discussed in the Toyota Skid Steer Safety Video. Daily cleaning after operating in harsh conditions. 	 Numerous hazards related to failure of FOPS & ROPS & other safety systems if they are modified. 	■ High



TOYOTA MANTARIAL	Revision	Review Date	Authorised	Page 7 of 9
HANDLING	6	1 April 2018	S. Palmer	r ago r or o

Design Feature / Utilisation	Assessment Comments	Major Hazard/s	Risk Rating:
Hazard to others	 Exposed moving parts such as the boom arm, attachments and load may place others at risk. Ensure others are clear of the SSL during operation at all times. 	 Crush or collision hazard 	• High
Environmental conditions	 Operators are advised to take extra care when operating SSL's near power lines, near people or with corrosive or dangerous loads. All Operators need to comply with statutory requirements for operation of 	 Collision hazard if used on public roads or in low light conditions. 	 Extreme
	this category of plant.	 Roll-over and tipping hazard if used in inappropriate conditions. Fire/Electrocution hazard 	 High Extreme
Misuse / fluctuating operating	• SSL is not to be operated on excessive gradients. For all other conditions, the Operator must assess the immediate work environment prior to operation.	 Collision hazard if used on public roads or in low light conditions. 	Extreme
conditions	Operators to refer to the Manual for ascending and descending guidelines	 Roll-over and tipping hazard if used in inappropriate conditions. 	▪ High
Competency of Operators & Training	 SSL Operator licencing requirements vary in each state. Refer to state regulatory body to ensure Operators comply with relevant legislation for licensing, competency skills, assessment and training. Initial induction is available through the Dealer. Additional training may be available through external providers 	 Collision hazard Roll-over and tipping hazard. Various hazards resulting from misuse/inappropriate use of SSL and attachments due to insufficient safety and operational training. 	 High High

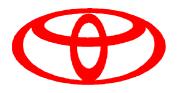


HAZARD and RISK TOYOTA (SE ASSESSMENT

TOYOTA (SSL) SKID STEER LOADER 4 SERIES

TOYOTA MANTARIAL HANDLINGRevisionReview DateAuthorisedPage 8 of 961 April 2018S. Palmer	
--	--

Design Feature / Utilisation	Assessment Comments	Major Hazard/s	Risk Rating:
Documentation and Provision of information	 The Operator's Manual, Video and Warranty are available in English Ensure operators have read and understood the Operators Manual. 	Various hazards resulting from misuse / inappropriate use of SSL & attachments due to insufficient safety & operation information.	
Operators Video	 The Operator's Video outlines general hazards related to SSL operation and advises that the Operator is required to conduct further hazard identification related to their own circumstances, application and working environment. The Video also provides the following information: Pre-operation check. Maintenance schedule (as indicated in the Operator's Manual) with annual service by Toyota Dealer. 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. Outlines safety features including to always wear the seat belt. Demonstrates possible tip hazards on slopes. Outlines the requirement for appropriate Operator's License. Indicates the overhead guard is not to be modified. Advises to raise SSL on the correct capacity jack. Never place body parts underneath the SSL. (However this cannot be avoided where access is required underneath the SSL during maintenance/repair for which an appropriate jack and stand is recommended). Highlights dangers to others. Caution the Operator to keep within the Manufacturer's instructions with regards to slopes. Clearance heights required from electricity poles. Advice to check headlights prior to use at night. 	Various hazards resulting from misuse / inappropriate use of SSL & attachments due to insufficient safety & operation information.	



TOYOTA MANTARIAL	Revision	Review Date	Authorised	Page 9 of 9
HANDLING	6	1 April 2018	S. Palmer	

Review of documentation:

Toyota Operator's Manual 4SDK3, 4

Toyota Operator's Manual 4SDK5, 6, 8

Toyota Operator's Manual 4SDK10

Toyota Industrial Equipment Warranty and Conditions

Toyota Industrial Equipment Repair Manual Models 4SDK3, 4, 5, 6, 8, 10

Toyota Industrial Equipment Parts Catalogue

Marketing Material for 4SDK

Application for Toyota Skid Steer Loader

Toyota Skid Steer Safety Video

References

Standards Australia, AS/NZS 4801:2001 Occupational health and safety management systems – Specification with guidance for use.

Standards Australia, AS2664:1983 Earthmoving machinery – Seat belts and seat belt anchorages.

Standards Australia, AS2294.2:1997 and AS2294.3:1997 *Earthmoving machinery protective structures – Part 2 & 3 Laboratory tests and performance requirements for roll-over and falling-object protective structures.* Standards Australia, Sydney.

National Occupational Health & Safety Commission: National Standard for Plant [NOHSC: 1010(1994)]

Standards Australia, AS/NZS4360 Risk Management.

NSW Occupational Health and Safety Regulation 2001, WorkCover NSW 2001.