Date: January 2024

Plant Identification: Telescopic Booms

Models	Safe Working Load (kg)	Maximum Platform Height (m)	Maximum Working Height (m)
HT 16 RTJ PRO	230/350	14.1	16.1
HT 23 RTJ PRO	230/450	20.5	22.5
HT 28 RTJ PRO	230/450	25.9	27.9
HT 43 RTJ PRO	230/450	40.2	42.2

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In accordance with the relevant Work Health and Safety (WHS) legislation, this document serves as confirmation that each model type Haulotte product has undergone a risk assessment to the applicable market. The risk assessment investigates potential hazards associated with operation, maintenance, servicing, inspection, transportation and storage of the subject plant. It is important to recognize that this is a plant specific risk assessment that is only applicable to the machine; other risk assessment duties for overall risk assessments requirements for the work environment, job specific task, etc should be also referred to within industry guidance documents.

To assist, HAULOTTE provides Operator's and Maintenance Manuals for the machine, which provides information regarding risks and correspondingly their control measures. Also, in accordance with the legislation, the information required to be supplied to the Owner, or User of the plant by the designer, manufacturer, supplier and importer can be found in the Manuals provided.

In addition to these manuals there may be industry guidance documents and/or standards for the products that can be used to help with identifying potential hazards on the jobsite (e.g. Codes of Practice "Managing Risk of Falls in the Workplace", AS 2550.10).

Hazard Type Checklist

The table provides a summary of some potential hazards associated with the use of the plant. Haulotte evaluates each of these potential hazards during the risk assessment process in an effort to select specific control measures, (e.g. designs, guarding, warnings) that will reduce the likelihood that the operator, platform occupant(s), maintenance personnel or bystanders will be exposed to the hazard.

Many of these hazards can be identified in the relevant States Plant Hazard Guidance document

Table 1 Hazard Type Checklist	
CRUSHING, ENTANGLEMENT, CUTTING, SEVERING, STABBING, PUNCTURING, SHEARING, FRICTION, IMPACT, TRAPPING	- Can anyone's hair, clothing, gloves, cleaning apparatus or any other materials become
	entangled in moving parts, or objects in motion.
	- Can anyone be crushed due to:
	o material falling from plant
	o uncontrolled motion or unexpected movement of plant
	o the plant tipping or rolling over
	o inadequate slowing or stopping devices of plant to control movement
	o support structure collapse
	o being thrown from or under the plant
	o coming in contact with moving parts of the plant during testing, inspection,
	operation, maintenance, cleaning or repair
	o being trapped between the plant and materials or fixed structures
	-Cutting, stabbing & puncturing due to:
	o contact with sharp or flying objects
	o coming in contact with moving parts of the plant during testing, inspection,
	operation, maintenance, cleaning or repair of the plant
	o parts of plant or worksite material disintegrating or falling
	o movement of plant
	o can anyone's body parts be sheared between moving parts or surfaces of the plant
	o can anyone be burnt due to contact with moving parts or surfaces of the plant
	o can anyone be struck by moving objects due to uncontrolled or unexpected
	movement of plant or work pieces (i.e. failure of the control system)
ERGONOMIC, SLIPPING, TRIPPING, FALLING	- Can anyone be injured due to:
	o uneven or slippery work surfaces
	o poor housekeeping in the vicinity of or in the plant
	o obstacles being placed in the vicinity of the plant
	o due to repetitive body movements
	o constrained body posture or the need for excessive effort
	o design inefficiency causing mental or psychological stress
	o inadequate or poorly placed lighting of plant or workers IN THE WORKING AREA
	o lack of failsafe measures against human error or human behaviour
	o mismatch of plant with natural human limitations
	o unhealthy posture or excessive efforts
	o lack of personal fall protective equipment
	o inadequate design/positioning of controls
HIGH PRESSURE FLUIDS, HIGH TEMPERATURES, FIRE/EXPLOSION	- Can anyone come into contact with fluids under high pressure, due to plant failure or misuse
	- Can anyone come into contact with objects at high temperatures, or objects which can cause
	fire or burning
	- Can anyone suffer illness due to exposure to high or low temperatures
	- Can anyone be injured by explosion of gases, vapours, liquids, dusts or other substances
	triggered by the operation of the plant or material handled by the plant
SUFFOCATION	- Can anyone be suffocated due to lack of oxygen, or atmospheric contamination

Table 1 Hazard Type Checklist	
ELECTRICAL	- Can anyone be injured by due to:
	o the plant coming into contact with live conductors
	o plant being too close to high tension power lines
	o overload of electrical circuits
	o damaged or poorly maintained electrical leads, cables and switches
	o water near electrical equipment
	o lack of insulation against water contact shorting
	o thermal/electrostatic radiation
	o magnetic interference from workplace affecting electrical components
STABILITY	- Can machine tip or roll over due to stabiliser not extending.
	- Stabilisers failing structurally, mechanically, or retract unintentionally.
	- Control valve or interlock failure.
	- Setting up on soft ground, unlevel or uneven ground, excessive slope.
	excessive climatic conditions e.g. wind.
HYDRAULIC FAILURE	- Hydraulic system failure.
	- Check valve or relief valve failure.
	- Hose or cylinder failure - mechanical or fatigue.
STRUCTURAL FAILURE	-Structural failure due to fatigue, corrosion, or overloading.
	- Pin, cable or linkage failure.
	- General overload, lifting excessive load, loading platform/basket in an unintended way.
MAINTENANCE	- Can anyone be injured:
	o while carrying out routine, preventative or corrective maintenance
	o explosion due to an ignition source near charging battery
	o adjusting equipment for essential components faulty or seized
	o operating a machine that has been damaged or modified
	o operating a malfunctioning machine
	o if the machines guards/covers are missing
TRANSPORT	- Can anyone be injured:
	o due to machine instability while loading/unloading, transporting
	o plant or objects falling from transport truck
OCCUPATIONAL HAZARDS	- Plant obstructing other plants at site.
	- Unauthorised use by untrained personnel.
	- Unintended use of duplicate controls while working.
	- Hearing loss or communication interference due to excessive noise.
	- Lack of personal fall protective equipment.
	- Use of the plant as a crane.
OTHER HAZARDS, EJECTION OF PARTS VIBRATION	- Can anyone be injured or suffer ill-health from exposure to:
	o chemicals, toxic gases or vapours, fumes, dust, noise, vibration, radiation
	o neurological and cardiovascular disorders from excessive vibration
	o inadequate visibility
	o road traffic
	o inadequate means of access
	o safe use of controls (speed of movement)
	o failure of controls
	o safety signs or decals removed
	o energy supply failure (electrical or mechanical)

Hazard Control Measures

HAULOTTE has instilled necessary control measures to minimize potential hazards to the operator, platform occupants, maintenance personnel and any bystanders. The control measures listed below is a summary of potential hazards associated with the plant itself and the necessary control measures implemented.

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
1	OCCUPATIONAL HAZARDS	General Operation by a trained, or untrained, operator leads to an accident.	• Comply with employer, job site and governmental rules • Read, understand and follow the instructions in the operator's and safety manuals supplied with the plant • Use good safe work practices in a commonsense way • Only have trained/certified operators, directed by informed and knowledgeable supervision, running the machine	• Address during company induction • Manuals provided in a storage location on platform
2	WORKSITE HAZARDS	Failure to perform a jobsite risk assessment	• A complete jobsite risk assessment should be performed prior to using the plant • To assist with this effort operators and maintenance manual identifies some of the common residual risks for the plant	•Every employer, user, and operator should review these residual risks and implement the necessary control measures to avoid them. Users and employers should also research other supplemental information regarding the safe use of the plant, to support this effort (i.e. AS2550.10)
3	CRUSHING ENTANGLEMENT CUTTING SEVERING STABBING PUNCTURING SHEARING FRICTION IMPACT TRAPPING	General Operation	• Guards are provided on the plant to protect persons at control positions, or standing adjacent to the plant at ground level, against thermal or mechanical hazards • Trapping and shearing points between moving parts which are within reach of persons on the work platform or standing adjacent to the plant at ground level are avoided by providing safe clearances or guarding, as applicable • When the work platform of a plant needs to be raised for routine servicing purposes, the hydraulic system allows the extending structure to be held in the required position	• Address during company induction Operator(s) to be aware of clothes and materials hanging near moving parts Tools and equipment may be strapped if required by site assessment

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
3 (cont'd)	Crushing, Collision / Striking	Objects falling from platform	• Kick rails / toe board around the bottom perimeter of platform is installed to avoid objects from falling • Operator's manual warns personnel to keep clear of area beneath platform and to cordon off the area • Plant is affixed with warning labels	• Tools and equipment may be strapped down if required by site management
		Sudden or unintended movements	• Striking due to sudden platform movements when driving is restricted with speed limiting. • Interlocks are provided to ensure against inadvertent operation by user. • An enable switch must be pressed before machine operation.	
		Operating in an area where obstacles, other people and plant may be present	• Beacon and motion alarm alert others in the area that the unit is in use. • Operator's manual contains instructions and guidelines for operating in these circumstances.	• Drive movement not provided at ground controls • Site management must ensure platform and work area remains free of debris and clear from obstacles
		Underneath platform when platform is being lowered	• Plant is clearly labeled with warning decals due to the potential crushing hazard associated with the type plants • Maintenance and operating procedures with safety instructions are provided in the Operator's manual	
	Crushing	Machine falling off truck during transport	• Provision is made for both lifting and tie down • Procedure is provided in the Operator's manual	
		Lifting machine	• Designated lifting points are indicated by decals • Lifting procedure is provided in the Operator's manual	

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
3 (cont'd)	Entanglement, friction, cutting	Engine components & Maintenance	• Engine components are enclosed under covers • Fan blades are shrouded • Warning decals are affixed. • Operators are not subjected to friction as there are no high speed exposed components • Guards provided is of a fixed permanent nature and can be removed with tools	• Maintenance to be carried out by qualified personnel. • Slew movement provided at ground controls for emergency operation. • Trained and competent ground personnel required to use ground controls.
	Entanglement, shearing		• Crushing hazard decals are clearly displayed on the plant • Warnings are placed in operators manual to prevent entanglement. Decals fitted to boom arms and linkages	• JSA, Training and Supervision to be provided by site management
	Friction	Mechanical Failure	• Operators are not subjected by the plant to friction, as there are no high speed exposed components • Mechanical failure due to friction is reduced with self-lubricating bushings and wear pads. Locations of lubrication points are in manual	
	Cutting Stabbing Puncturing	General Operation	• Controls and other contact surfaces have no sharp edges • Controls are ergonomically designed	• Bystanders must stay clear when plant is operational
4	ERGONOMIC SLIPPING TRIPPING FALLING	Loss of braking while travelling	• Brakes automatically engage on the plant when power cut off • Brakes are capable of holding the plant on approved slopes. • The plant stopping distance at maximum speed meets the design requirements • Control positions on the plant are located and designed to allow excellent visibility and to allow slow, deliberate movements to prevent contact with adjacent objects • When the platform of the plant is elevated, the drive speed is reduced. Proportional drive is provided	

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
4 (cont'd)	ERGONOMIC SLIPPING TRIPPING FALLING	Loss of braking while travelling (cont'd)	• Operators are protected from falling from platform with a solid peripheral railing around the entire platform • Harness attachment points are provided and labeled on the platform • RED emergency buttons are positioned at all control stations • Interlocks are designed in to prevent inadvertent movement	• Site management to ensure occupants in platform wear a fall arrest harness, with lanyard and energy absorber in accordance with governmental regulations. • Use a harness adjusted to your size that has been inspected by a competent person
		General operation - Lighting	• Optional spotlights can be fitted to the platform rail	
		Unintended platform movement	• Extending system is designed and constructed to prevent any inadvertent movements of the extending structure	
5	HIGH PRESSURE FLUIDS HIGH TEMPERATURES FIRE / EXPLOSION	High Pressure fluid jets resulting puncturing the skin or eyes	• Hydraulic hoses used have a bursting pressure well over the working pressure • Relief valves are used to prevent over pressurizing the hydraulic system. • Engine exhaust is directed away from the control positions and from all electrical wirings • Guards are provided at control stations protecting the persons, or standing adjacent to the plant at ground level, against thermal and mechanical hazards • High temperature components such as engine and pump are positioned out of arms reach and in enclosures • The battery is constrained to prevent unintentional displacement, or ejection of electrolyte, even in an overturning event • Filling points for flammable fluids are positioned to minimize the risk of fire from spillage on hot parts	• Fire extinguishers to be provided following job assessment • JSA, training and supervision must be provided by site management
6	SUFFOCATION	Inhalation of exhaust gases	• Exhaust gas is directed away from the operator • The design of the platform is that of open air	

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
7	ELECTRICAL	Electrocution, Working too close to energized power lines	• Machine is clearly marked with electrical warning decals to reduce the risk • Warning decals are placed on the machine and are marked noninsulating • Safe operating procedures and minimum approach distances are placed in the manual • Decal - Minimum safety distance from the energized/power lines is fitted	• JSA, training and supervision must be provided by site management to ensure safe working clearances from the electric field are assessed. Consider boom deflection in the assessment of the safe working distance
		Electromagnetic interference	• Design is sufficient for normal use. • Testing is completed as per IEC requirements.	
		Shock from electrical system	• Plants fitted with 240V AC outlets have an earth leakage circuit breaker and wiring, as applicable • Cables are insulated and secured to plant. These cables have protective rubber boots over connection points to prevent contact shorting during maintenance • Inspection and maintenance procedures are in operating manual	
		Loose wire shorts	• Connectors used are either insulated crimp lugs, locking plastic plugs, or permanent type clamps • Wiring is routed to prevent chaffing. Plants are fitted with the control system which uses malfunction/error signals to assist in faultfinding • Fault codes are explained in the operating manual	• Conduct inspection as scheduled
		Water bridging	• Wiring looms of control boxes are covered with water resistant covers • Electric components are tested for water damage to meet IP requirements • Inspection and maintenance procedures are in Operator's manual	

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
7 (cont'd)	ELECTRICAL (cont'd)	Battery charging	• Battery is automatically charged while engine is running and, as it is only being trickle charged, gas (hydrogen) build-up is not considered a problem • Safe charging procedures are placed in the operator's manual	• As required, charge battery in a well ventilated area
8	STABILITY	Occupational Hazard Unauthorized use	• Plant is equipped with a key switch to prevent unauthorized use • Additionally only one control station can be operated at any given time	
		Overloading the platform	• Maximum safe working load and number of people is clearly marked on the plant • Range charts decal fitted to base frame and platform • Visual indicator provided at the controls	• Do not overload platform or carry material which increases wind surface area
		Excessive manual side force	• Maximum allowable manual side force is marked on plant	
		Tip Over	• All plants have undergone detailed stability analysis • These calculations take into consideration the machines expected operating configuration, envelope, and approved operating conditions (i.e. slope)	
			• Stability analysis takes into consideration a number of foreseeable forces including gravitational (based on rated capacity), dynamic, wind, and manual forces	
			• Stability analysis not only evaluates the plant's static condition, but also potential effects of dynamic conditions (i.e. braking, and depressions)	
			• Stability analysis is verified by physically testing the static and dynamic stability of the design	

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
8 (cont'd)	STABILITY (continued)	Slope Side force	• Interlocks prevent plant operation on excessive slope • Tilt switch provides an audible and visual alarm when plant is put in an out of level condition • Machine is counterweighted to meet requirements • A permanent type specification plate is permanently attached to the plant which shows SWL, max slope, max side force and wind speed • Operator's manual states that the machine is not to be driven and the platform must not be elevated on sloping, uneven or soft ground • Warning decals are placed on plant, and safe operating procedures are placed in the operator's manual	• Site management to ensure occupants in platform wear a fall arrest harness, with lanyard and energy absorber in accordance with governmental regulations • Site management to ensure operators are trained in EWP operation and plant is operated within specified limits
		Travelling	• Plant is equipped with a chassis inclination device, which sounds an alarm when the terrain slope is approaching the allowable limits • Travel speed is limited when elevated • Interlocks prevent plant operation on excessive slope • Braking is designed to hold the plant on its maximum rated grade • Plant is tested for dynamic stability in various conditions as per requirement • Warning decals are placed on plant, and safe operation and transportation procedures are placed in the operator's manual • A permanent type specification plate is stamped with design limits • Direction arrows (green/red) fitted to chassis and control position	• Site management to ensure occupants in platform wear a fall arrest harness, with lanyard and energy absorber in accordance with governmental regulations • Operate plant in accordance with load, slope and wind limits
		Driving too fast when elevated	• Control system limits the travel speed when elevated	
		Operator trapped in an elevated position	• DC power pack provided in case of failure of primary energy supply • Instructions provided on machine and in manual	• Site management to ensure a ground crew member is trained in emergency retrieval of plant

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
8 (cont'd)	STABILITY (continued)	Adjusting equipment	• Test points are provided for checking of pressure settings e.g. drive and lift relief • Adjustment points require tools to change • Correct adjusting procedures are placed in the manual • Hydraulic (and other) specifications are listed to enable adjustment	
9	HYDRAULIC FAILURE	Unintended platform movement	• A dead man pedal is fitted and dual input is required by operator • When power to the controls stop or fails, this system automatically locks the work platforms movements, in any position	• Training and supervision must be provided by site management
		Excessive pressure build-up	• Relief valves are used to prevent over pressurizing the hydraulic system • Holding valves prevent unsafe descent in the advent of failure • Correct pressures listed in the service manual • Hydraulic hoses used have a bursting pressure well in excess of the working pressure • Inspection and maintenance procedures are placed in the Operator's manual	
		Overloading the structure and drive system.	• Pressure limiting devices are provided to protect the extending structure, and drive system, to prevent structural damage	• Do not overload platform
		Mechanical Pump, motor, control valve or interlock failure	• In the advent of pump or motor failure, an emergency lowering system is installed on the machine • Holding valves on cylinders prevent inadvertent movement. • Holding valves are installed to prevent decent due to hydraulic failure • Inspection and maintenance procedures and daily inspection list are placed in the operator's manual	• Inspection, cleaning maintenance and repair must be conducted when plant is stationary

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
10	STRUCTURAL FAILURE	Failure of any structure	• The plants have undergone detailed structural analysis • These calculations take into consideration the machine's expected operating configuration, envelope, and approved conditions (i.e. slope)	
			• Structural analysis takes into consideration a number of foreseeable forces including gravitational (based on rated capacity), dynamic, wind, and manual forces	
			• Structural analysis is verified by physically testing the structural soundness through both static and dynamic loading	
		Fatigue	• The plant has been cyclic tested beyond its rated design life cycle against fatigue • Maintenance schedule provided in the manuals • Annual inspections are required as stated in the manual	
		Wear and corrosion	• Corrosive surfaces are painted, components subject to wear have provisions to minimize wear by using sacrificial components or lubrication e.g. wear pads, self-lubricating pins • Lubrication points and a schedule for maintenance are provided in the manual	• Conduct pre-operational inspections and periodic inspections as scheduled
		General overload	• A relief valve is used to prevent excessive loads being lifted by the platform • Test points are provided for checking of pressures • Warning decals on machine show safe working loads • Safe operating procedures are placed in manual	• Do not overload the platform
		Overloading Platform	• The plant is equipped with a load-sensing system, which protects the plant and operator from reaching a point where the platform can be operated when the platform has been overloaded	• Do not overload the platform at elevated heights
		Tip Over	• To help avoid overturning of the plant the structure for the plant is equipped with non-mechanical limiting devices (i.e. limit switches) to limit the operation	

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
OTHER HAZARDS	Falling	General Operation	• Operators are protected from falling from platform with a solid peripheral railing around the entire platform • Harness attachment points are provided on the platform • RED emergency stop buttons are positioned at all controls stations	
	Slipping Tripping	From within the platform	• Operators manual says to keep platform floor free of debris • Interlocks are in place to prevent inadvertent movements • An enable button must be pressed before operation • Solid handrail is provided to hold on to while operating the platform controls	• Site management to ensure occupants in platform wear a fall arrest harness, with lanyard and energy absorber in accordance with governmental regulations
	Excessive effort	General Operation	• Controls are designed to operate with one hand and are either of joystick, toggle or button type • Non-assisted controls are minimized using electrical actuation • Where controls are mechanical in nature operating effort is reduced as far as practicable • Controls return to neutral upon release and movement will only occur when physically actuated	• Site management to ensure platform remains in clean, free of debris and safe condition
		Maintenance	• Components which require regular maintenance such as filters are placed in an easily accessed area • The plant features hinged compartments which house battery, motor, valve bank etc., away from the chassis for easy access	• Only trained, qualified personnel must do maintenance work
	Operating stress	General Operation	• Control box face plates use pictures for functions, and switches, which control 'direction', operate in that direction • Plants are field tested for controllability and ease of use • Handrails are provided around control station for support during motion • Warning decals are used to warn of incorrect operating procedures	• Replace control box faceplate label(s) if illegible or damaged

HAZARD CONTROL MEASURES				
HAZARD NUMBER	**HAZARD TYPE**	**LOCATION / SITUATION**	**CONTROL METHOD IN PLACE TO REDUCE RISK**	**ADDITIONAL CONTROL METHOD REQUIRED**
OTHER HAZARDS (cont'd)	Noise	General Operation	• Engine and other hydraulic components have a shroud around them and are not considered to pose noise problems • Where noise is considered excessive, level testing is done and noted in the operator's manual	

Product Safety

The information provided in this document is only a small example of the activities which have been undertaken by Haulotte to ensure the safety of the plants.

These include:

- Performing computer simulation/modeling of product and internal design calculations
- Independent design review by an independent engineer to local design requirements is completed in Australia
- Cycle testing of components to ensure fatigue life is adequate for a 10 year life is completed
- Extensive field testing of prototype units to ensure faults and hazards are identified

Occupational Health & Safety Legislation

The below legislation has been used to produce this document.

ACT, NSW, QLD: Work Health and Safety Act 2011
NT: Work Health and Safety (National Uniform Legislation) Act 2011
SA, TAS: Work Health and Safety Act 2012
VIC: Occupational Health and Safety Act 2004
WA: Occupational Safety and Health Act 1984