INVADER

OPERATION MANUAL

INVADER 45

3.0m, 4.0m, 6.0m

CONVEYA

INVADER45

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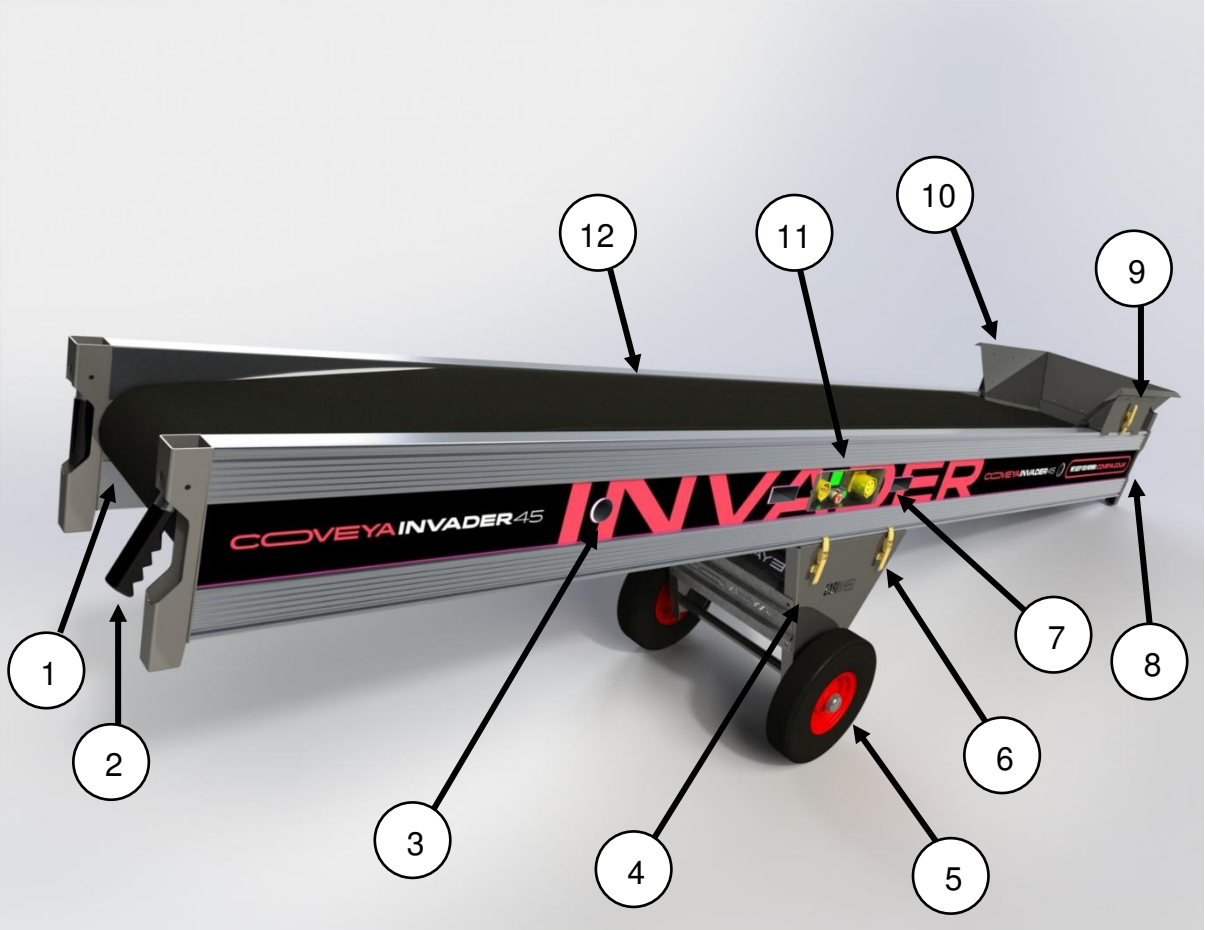
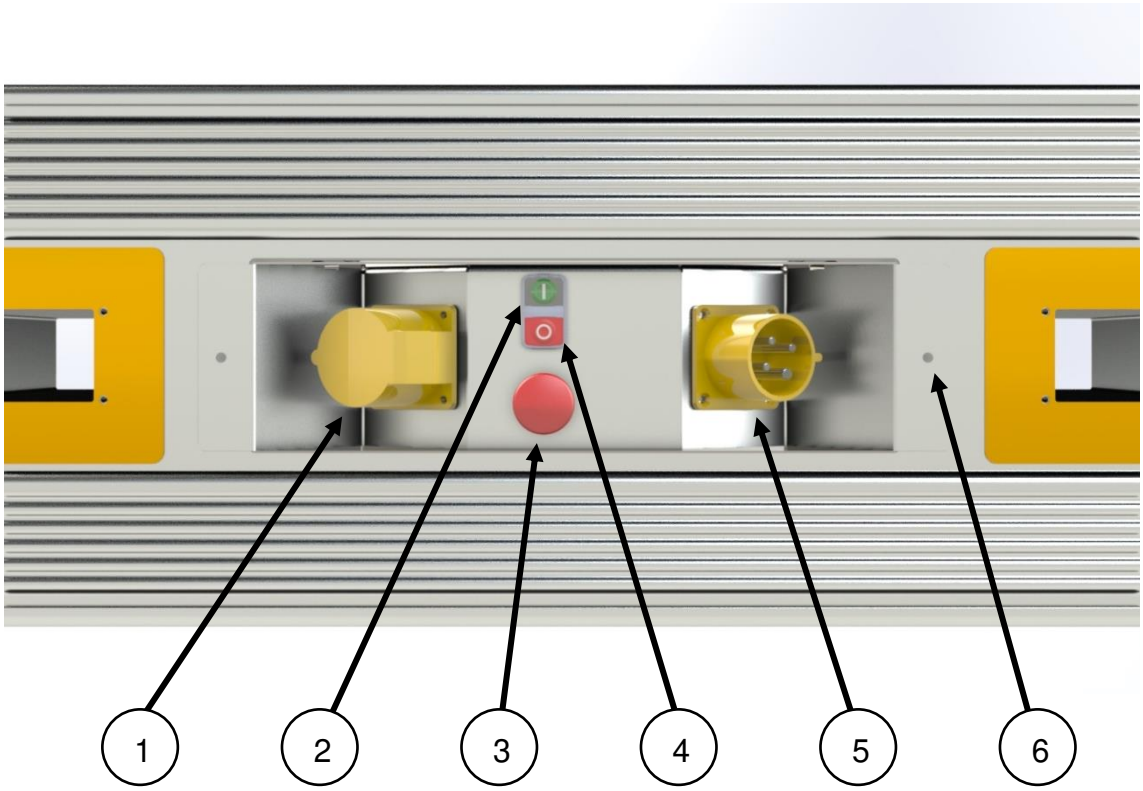
1. KNOW YOUR CONVEYOR



1. Drive Drum
2. Lifting Handles
3. Scaffold Holes
4. Wheeled Undercarriage
5. Pneumatic Wheels
6. Undercarriage Release Latches
7. Forklift Holes
8. Belt Tensioning Points
9. Hopper Release Latches
10. Feed Hopper
11. Control Box
12. Conveyor Belt

2. CONTROLS



1. Power Supply Out (for additional conveyors)
2. Start Button
3. Emergency Stop Button
4. Stop Button
5. Power Supply In
6. Control Box Fixing Screws

3. SAFETY

FAILURE TO FOLLOW THE INSTRUCTIONS AND SAFETY ADVICE IN THIS MANUAL COULD RESULT IN DEATH OR SERIOUS INJURY.

Do Not Operate The Conveyor Unless You:

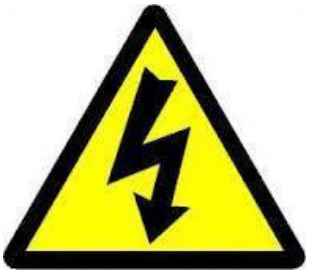
1. Have read and understand the principles relating to the safe operation of your conveyor contained in this manual.
2. Avoid hazardous situations.
3. Always check the conveyor/s before every use.
4. Inspect the workplace for hazards.
5. Only use the conveyor for the purpose it is intended.
6. Are properly trained to safely operate the conveyor.

HAZARDS – Set-up

- Make sure that the work area is free of any overhead obstructions and any other hazards such as unstable ground or other work activities taking place.
- Do not use the conveyor if you are under the influence of alcohol or drugs or prescribed medication that may affect your judgement.
- Assess suitability of the ground surface condition prior to conveyor set-up.
- Ensure the conveyor is adequately supported and wheels are braked/chocked before use.
- Do not alter or disable the conveyor components with items that in any way affect safety and stability.
- Do not ride on the belt.
- Do not operate in high winds or adverse weather conditions
- Inspect the undercarriage wheels to ensure the tyres are in good condition.
- Do not alter or disable the control box, motor, power leads or plugs without prior consultation with the manufacturer.

HAZARDS - Electrocution

- The conveyor is not electrically insulated and will not provide protection from contact with or proximity to electrical current.
- Do not use if cables are damaged
- Do not operate during lightning or storms.
- Do not use the conveyor as an earth for welding.
- Ensure safe routing of power cable to minimise risk of electrocution.



HAZARDS - Explosion and Fire

- Do not operate the conveyor in locations which are hazardous where potentially flammable or explosive gases may be present.

HAZARDS – Fall

- Do not allow access to the underside of the belt whilst in use, without suitable protection in place – material can drop from the belt and cause injury.
- Do not lean over the conveyor while the belt is moving.
- Do not ride on the conveyor.

HAZARDS - Bodily Injury

- Take care when planning the installation and operating the conveyor.
- Keep hands and limbs away from moving components.
- Always wear correct PPE.

HAZARDS – Damage to Conveyor or Components

- If you are using a generator, make sure it is fitted with a voltage regulator.
- Do not over load the conveyor - 200kg MAX belt load.
- Do not use the conveyor if it is damaged or malfunctioning.
- Carry out a thorough inspection before operating the conveyor and check everything is functioning
- Ensure that any maintenance specified in this manual is carried out at regular intervals by competent personnel.
- Make sure that all identification labels and serial number plates are present and readable.

4. PRE-START CHECKS & INSPECTION

It is the responsibility of the operator to visually check the conveyor and surrounding area before starting the conveyor. This should be carried out before each work shift.

A damaged or modified conveyor should never be used. If any damage or modification is found, the conveyor should be disconnected from the power, tagged and removed from service.

The following components or areas should be inspected for damage, modifications and improperly installed or missing parts:

1. Electrical Components.
2. Wiring.
3. Power Sockets.
4. Motor and Gearbox.
5. Conveyor Frame.
6. Conveyor Feed Hopper.
7. Belt Condition.
9. Any hoarding to protect public areas.
10. Conveyor Wheeled Undercarriage or Supports.

The following components should be checked for operational functionality:

1. Belt tension & tracking.
2. If a plough belt scraper is fitted, check it is making adequate contact with the belt.
3. Emergency Stops are operating.

The following areas should be checked for cleanliness:

1. Material jammed between belt & conveyor frame.
2. Build up on slider beds.
3. Area under and adjacent to the loading/tail section.
4. If the conveyor is on a scaffold – ensure the area underneath the conveyor is clear of any debris.

Do not operate the conveyor unless you have read and understood the instructions.

The operating instructions section provides instructions for the safe use of the conveyor. It is the responsibility of the operator to follow all the safety rules and instruction provided in this manual.

Only trained personnel should use the conveyor.

1. Fit the hopper to the loading end of the conveyor. Align the locating posts and secure the hopper to the conveyor by means of the two over-centre catches.

2 Lift the loading end of the conveyor using the two carrying handles and position the wheeled undercarriage in the centre of the conveyor.

3. Secure in place tightening the four over-centre catches.

4. Wheel the conveyor in to place using the handles at the top of the conveyor. If lifting of the conveyor is required, make sure this is carried out using proper manual handling procedures.

5. CONDITIONS OF USE

Electrical Supply

- A constant 110v supply is critical for operation
- If operating from a generator ensure that this is rated at 10KVA or if using a transformer use minimum 5KVA
- Ensure supply lead is a maximum length of 10m

Range of Intended Environmental Conditions:

Do not use the conveyor outside the following environmental conditions:

- Ambient temperature: -10°c -+40°c
- Wind Speeds: 0 – 50MPH

Prohibited Applications

Do not use the conveyor if any part is:

- Submerged in water.
- In an explosive atmosphere.
- In a corrosive atmosphere or environment.

Prohibited Materials

- Solely Liquids.
- Reinforcing bar or metal rod.
- Items longer than 500mm.
- Lumps weighing greater than 30kg or measuring greater than 300mm x 200mm x 200mm.
- Heated materials above 60°c.
- Substances corrosive to rubber or metal.
- Materials likely to puncture the belt.
- Polymers or lubricating substances.
- Asphalt or adhesive substances likely to stick to the conveyor following use.

Conveyor Sound Levels:

- Decibel Rating 60-65db

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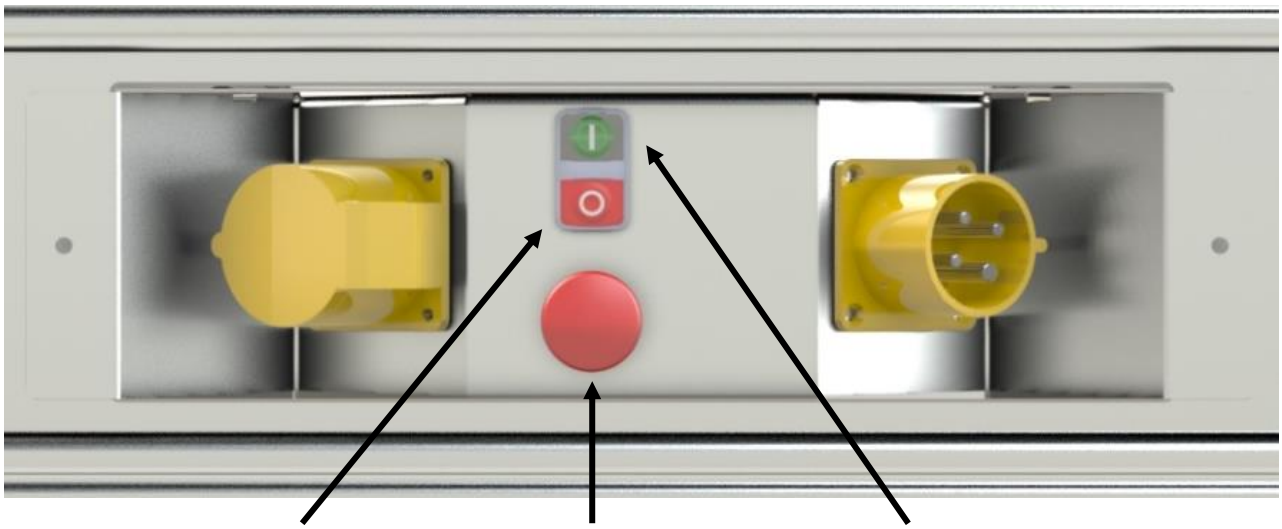
6. FUNCTIONALITY CHECKS



Red Stop Button **Emergency Stop** **Green Start Button**

Emergency Stop

1. Press the green start button – the belt should move forwards
2. Press the emergency stop button – the belt should stop straightaway
3. Twist the Emergency Stop Button to reset

Stop/Start

4. Press the green start button – the belt should move forwards
5. Press the red stop button – the belt should stop straightaway

Voltmeter

If your conveyor is supplied with a Voltmeter, once power supply is connected the screen will display what your supply voltage is.

IF THE CONVEYOR FAILS ANY OF THESE TESTS, IT SHOULD BE TAKEN OUT OF SERVICE AND REPAIRED.

7. OPERATING INSTRUCTIONS

Start Up Procedure

1. Connect power lead to Control Box.
2. Switch on Power supply.
3. Check that the discharge area is clear.
4. Ensure nothing is leaning on the conveyor or likely to interfere with the belt running.
5. Give audible warning and press the green start button on the Control Box.
6. Test emergency stop button by pressing/pulling it and checking belt stops. Release button and begin operation.

Loading Methods

- The conveyor must only be loaded at the hopper or at designated loading points.
- Loading must only commence once conveyor has been started.
- The conveyor must be loaded evenly and smoothly

OVERLOADING WILL INEVITABLY CAUSE JAMMING AND BREAKDOWNS, THEREFORE CAUSING DOWNTIME ON SITE.

- Remember you are feeding a moving belt, so feed accordingly and the conveyor will work well.
- Ineffective loading or overloading can cause material to spill off the sides of the conveyor and build up around the conveyor. This can in turn get into the conveyor frame and jam the conveyor or damage the bearings.
- When loading steeper conveyors some rollback will occur. Care must be taken to ensure injury cannot be caused to the operator or others by large lumps coming back down the belt. One way to reduce this risk to fit baffles above the belt to break the fall of rolling back lumps.
- If using a machine to load the conveyor ensure that it has a bucket with a maximum width of 450mm.

Stopping Procedure

1. Ensure belt is emptied, except in emergency stop conditions.
2. Press the red stop button.
3. Power down the Control Box and remove the power lead.

8. MAINTENANCE CHECKS

Belt Tension and Tracking:

Maintaining the proper belt tension is an important part in keeping your conveyor performing well and minimises the likelihood of breakdown. Operating the conveyor with an improper belt tension can cause damage to conveyor components.

The only tool required for tensioning and tracking is a 19mm socket.

Check Belt Tension Whilst Power Is Off.

1. The belt will only need to be tensioned if it is slipping under load.
2. At the Tail end of the conveyor, tighten the two 12mm stud bolts holding the tail drum to increase tension.
3. Apply tension evenly to each side.
4. Turn on conveyor and repeat the process until the belt stops slipping.
5. Observe the belt tracking.
6. Tracking at the Head of the conveyor is corrected via 1 x M12 Bolt on the Head end of the conveyor.
7. Tracking at the Tail of the conveyor can be corrected via the M12 stud bolts used for belt tensioning.

Check Belt Slider Bed Condition:

Ensuring no muck or debris is built up on or around the slider bed is essential to ensure good performance and service life.

Check belt slider bed whilst power is off.

1. Lift belt at base and top of conveyor.
2. Inspect the condition of slider bed.
3. Move along the conveyor checking the bed is free of debris or build up.

9. TRANSPORTATION

Each Invader conveyor has forklift holes to facilitate safe lifting with forklift truck.

Ensure transport vehicles are parked on a level surface.

Remove wheeled undercarriage and feed hopper and transport these separately.

SECURING THE CONVEYOR FOR TRANSPORT:

Conveyors are stackable and have locating points at each end of the conveyor.

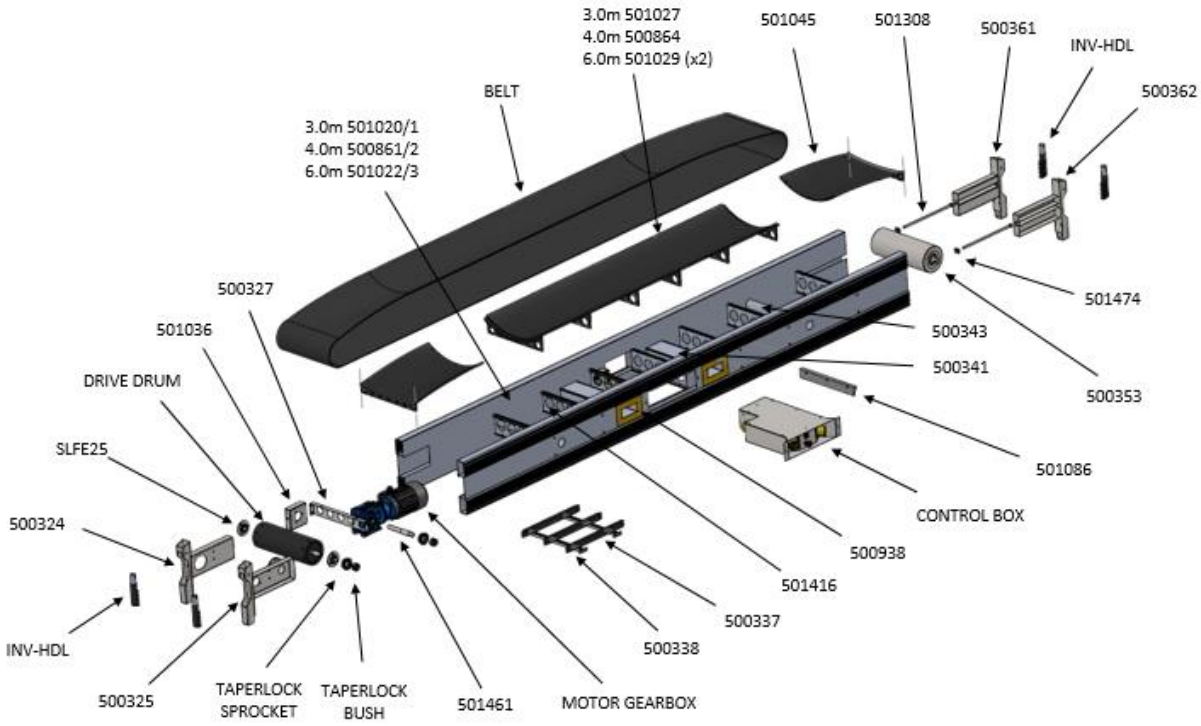
Inspect the conveyor for loose or unsecured items prior to stacking.

ENSURE STRAPS ARE NOT OVER TIGHTENED

Excessive tensioning of straps will cause damage to the conveyors.

10. PARTS

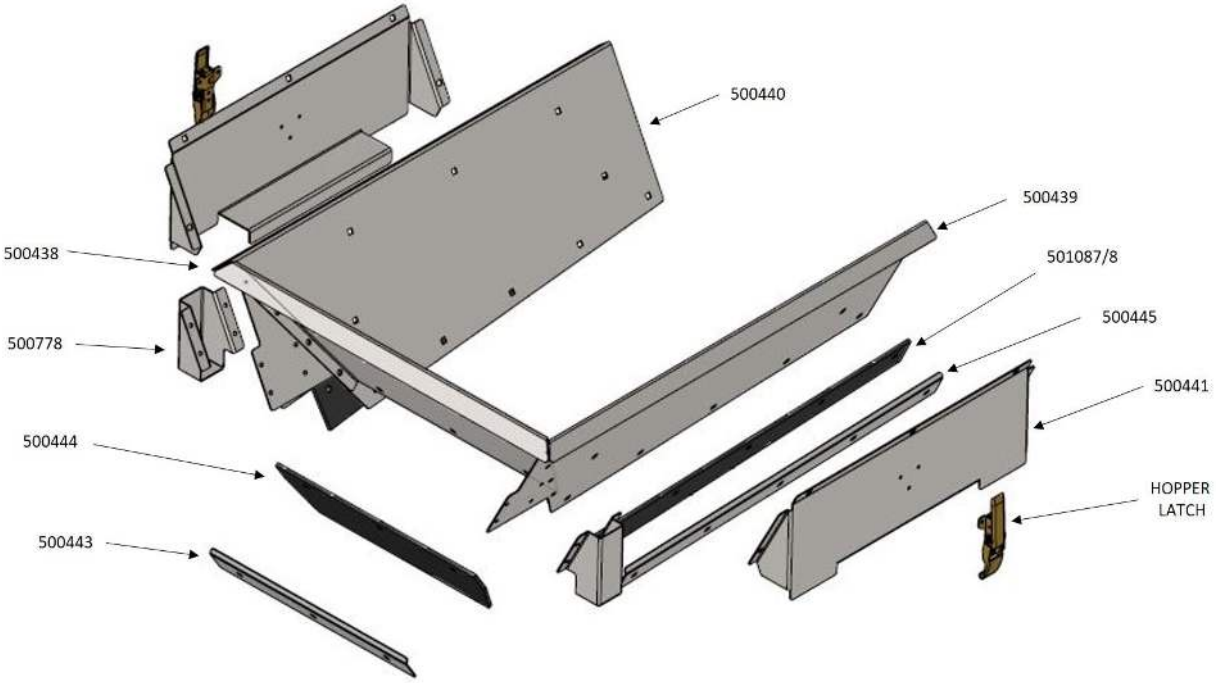
CONVEYOR



501027	3.0m Slider Bed
500864	4.0m Slider Bed
501029	6.0m Slider Bed (Qty 2)
501045	Slider Bed Curved End - Drive
501452	Slider Bed Curved End - Feed
501461	Drive Shaft
500324	Drive Plate RH
500325	Drive Plate LH
500327	Head Straight Cross Support
501036	Head Tracking Bracket
500361	Tension Plate RH
500362	Tension Plate LH
500353	Tail Drum

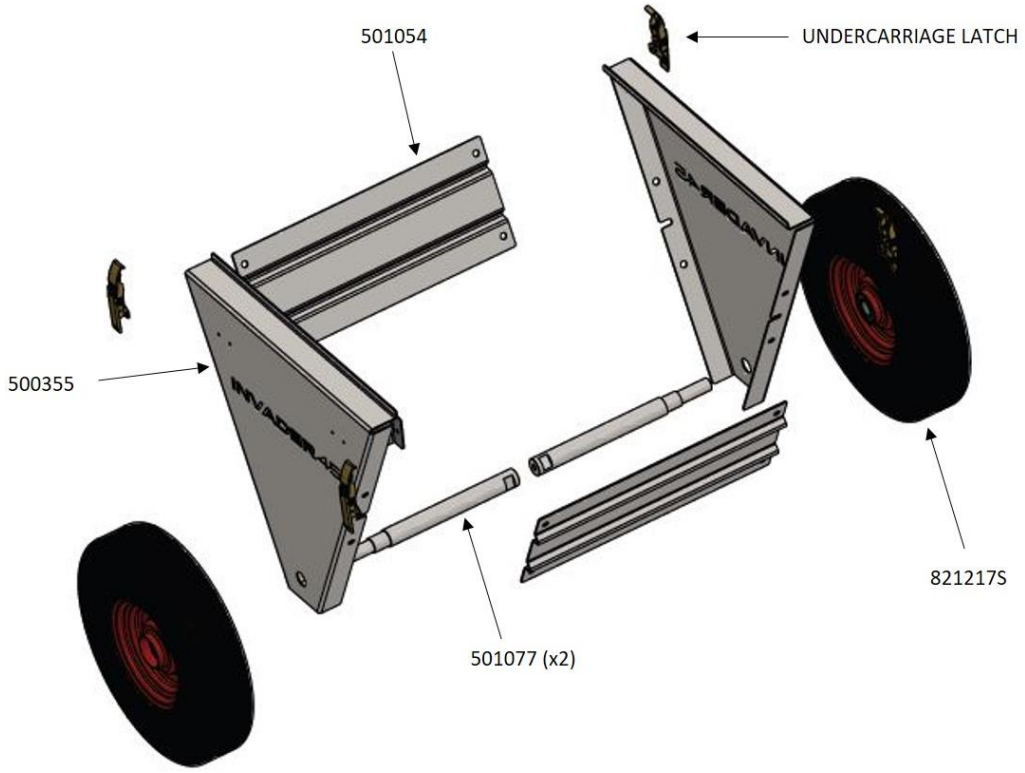
501308	Tensioning Stud
501474	Rectangular Nut
500337	Plastic Return Support
500338	Return Cross Member
502028	Forklift Protector Plate
501086	Internal Scraper Blade
502023	Cross Brace Strengthener
502055	Internal Scraper Left
502056	Internal Scraper Right
502032	Handle Lock
IV-DD	Drive Drum
INV-HDL	Handle
SLFE25	Drive Drum Bearing

HOPPER



500438	Hopper Back	500445	Hopper Side Rubber Clamp
500439	Hopper Side RH	500778	Hopper Locator
500441	Hopper Side Support	501087	Hopper Side Rubber LH
500443	Hopper Back Rubber Clamp	501088	Hopper Side Rubber RH
500444	Hopper Back Rubber	EWL70	Hopper Latch

WHEELED UNDERCARRIAGE



500355	Undercarriage Frame	501077	Wheel Shaft (Qty 2)
501054	Undercarriage Cross brace	821217S	Undercarriage Wheel
EWL70	Undercarriage Latch		

11. SPECIFICATION

Frame Size	3.0m	4.0m	6.0m
Length	3000mm	4000mm	5800mm
Width	590mm	590mm	590mm
Height	350mm	350mm	350mm
Hopper Size	650 x 800mm	650 x 800mm	650 x 800mm
Weight	130kg	160kg	200kg
Specifications			
Belt Speed	0.75m/s (45m/min)		
Belt Width	450mm	450mm	450mm
Belt Load	200kg	200kg	200kg
Tons per Hour	150 t/h	150 t/h	150 t/h
Voltage	110/230V	110/230V	110/230V
Motor	1.5kw	1.5kw	1.5kw
Maximum Angle	40^0	40^0	40^0
Max Discharge Height	1885mm	2525mm	3715mm