Integrated Tool Carrier (ITC) with Work Platform Attachments

What is an Integrated Tool Carrier
An integrated tool carrier is a machine similar to a wheel or front-end loader which has a quick release mechanism on the lift arms which allows for the fast changing for various attachments including forks, brooms, booms, buckets, blades and more.

Integrated tool carriers can be used in many scenarios, including mining, civil construction, clean up and relocation of rocks/dirt, agriculture, forestry and more.

Ensuring compliance
The following information has been developed as guidance on the use of work platform attachments fitted to ITC Loaders. This information is referenced in relevant Australian Standards.

As a minimum, the following criteria should be met to ensure compliance,

- When an ITC is used to support a Work Platform attachment it must comply with AS/NZS1418.10.
- Only attachments approved for use on a specific model ITC by the manufacturer of the ITC, or, a competent person may be used. Platforms supplied by third party vendors independent of the ITC manufacturer do not satisfy this requirement.
- Platform attachments must be fitted via a quick hitch and must not be attached to fork tynes.
- The ITC must be equipped with the following systems:
    - Means of emergency retrieval in the event of loss of power of the primary source. e.g. A DC electric or hand pump – operable from the ground.
    - Emergency controls, accessible from the ground for lowering the platform in the event of control malfunction – complete with instructions for use.
    - Emergency Stop switches located in the basket and at the ground controls.
    - Hydraulic system load holding valves in case of hydraulic hose failure.
    - Systems to prevent the platform from exceeding the manufacturer's maximum rated capacity.
    - A load chart depicting the rated capacity(ies) of the platform attachment and ITC combination, the allowable manual force (200N for platforms designed for one person or 400N for platforms capable of carrying more than one person), the operating envelope, the allowable wind speed, the permitted operating slope in both longitudinal and lateral directions, and instructions for use.
    - Operator controls mounted in the platform.
    - Facility to connect controls located at the platform to the ITC
    - A platform recognition system that automatically (i.e. without operator intervention) causes the ITC to revert to “platform operating mode” and invokes all necessary interlocks to enable the ITC to be operated within the manufacturers specifications when a platform is fitted.

NOTE: ITC’s that rely on the platform controls being connected to invoke platform operating mode do not fulfil this requirement.

Examples of such interlocks are:

- The ITC cannot travel, or can only travel at limited speed when the boom is raised – for those designed to operate on tyres alone.
- If the ITC platform combination is designed to travel with the boom raised, an alarm system is provided that sounds when the unit is on a slope exceeding the manufacturers specifications.
- That the ITC cannot be operated unless the platform is secured in place by a connecting pin or pins.

NOTE: The majority of ITC's in use are not equipped with the above devices, and should not be used with work platforms.

The following requirements (usually demonstrated by calculation and test) must be satisfied:
The ITC/platform combination must pass the following stability tests specified in AS/NZS1418.10:

- Static stability test (This test is not equivalent to the tests specified for ITC's equipped with forks or other attachments)
- If supported on pneumatic tyres, that the ITC platform combination remains stable under a condition where one tyre is deflated.
- If the ITC /platform combination is designed to travel with the boom raised - kerb and depression tests. The ITC/platform combination must pass the following functional tests specified in AS/NZS1418.10:
- If required to operate on outriggers – that the Boom cannot be raised or unless the outriggers are set, and the outriggers cannot be operated unless the boom is lowered.
- That the machine cannot be driven when the boom is raised – unless designed to do so.
- If the machine can be driven with the boom raised, that the speed is automatically limited to 0.7m/second.
- If the machine can be driven with the boom raised, that an audible alarm sounds when the machine is driven onto a slope exceeding the manufacturers rating.
- The machine cannot be operated outside its working envelope.

Additional Compliance Requirement

- If the work platform can be raised higher than 2.4 meters, the machine and platform must be managed as registered classified plant. The machine attachment combination must be design verified by a person independent from the design of the plant and design registered with an appropriate state regulatory body.

SAFE OPERATION OF ITC LOADERS FITTED WITH WORK PLATFORMS

To reduce risk during operation the following guidelines should be observed:

- The operator must be aware of the dangers posed by overhead obstructions. (Risk of crushing).

- Ground conditions - particularly in underground mines where driving over an undulating surface with the platform in a raised position can cause the platform to ascend / descend unexpectedly and violently. (Risk of crushing, overturning or falling)
- For machines fitted with articulated steering - operating the steering whilst the platform is in a raised condition will change the machine's center of gravity and can compromise machine stability. (Risk of overturning/overload).
- Controls located in the cab must not be used to elevate the work platform. (Risk of crushing due to reduced visibility from the cab and inefficient means of communication). Controls located at ground level are for emergency use only.
- The ITC Loader must be setup in accordance with the specifications/limitations provided by the manufacturer for the ITC Loader/platform combination. (Risk of overturning/overload).
- Most ITC Loaders fitted with work platforms must have outriggers engaged and must not be driven with the boom raised and extended. (Risk of overturning)
- Platforms must not be fitted with banners or other bluff objects that increase the sail area (Risk of overturning)
- Every occupant must wear a Fall Arrest Harness attached to anchorage points provided on the platform via an appropriate lanyard and energy absorber (Risk of falling).
- Clearances must be maintained from live electrical apparatus. (Risk of electric shock).
- ITC Loaders must not be used in the dark – unless adequate lighting is provided
- ITC Loaders must not be used in electrical storms.
- Maintain a safe clearance distance from powerlines at all times.
- Operators of ITC Loaders must have a WP class High Risk Work Licence if the boom is capable of 11m or more extension. Furthermore, the regulations require the machine to be managed as registered classified plant if the platform movement is more than 2.4 metres. The requirements of AS 2550.10 should also apply.
- All operators should also be trained in the safe use of the ITC Loader/work platform combination.
- A person trained in the use of emergency controls must be available at ground level to lower the machine in the event of an emergency.

Annex A

- The following flow chart provides a no-exhaustive overview of the basic compliance requirements, please ref to AS/NZS1418.10 for the full requirement.

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ASSESSMENT FLOW CHART - INTEGRATED TOOL CARRIER FITTED WITH WORK PLATFORM