

# Dynamic Dropped Objects: Inspection Tips



Dynamic Dropped Objects are items that are dislodged or become disengaged due to applied force. Consider each of the following tips during all pre-task checks and inspections, and at any time where dynamic forces are prevalent.

**Walk through each step of the Task** to identify where dynamic forces will affect fastenings, equipment and structure, ensuring that collision or snagging potential is identified and carefully managed. (*See overleaf for dynamic forces*).

Where moving or moveable equipment is in **direct contact with structure or other equipment**, ensure all operational and parked positions are fully in accordance with asset procedures and all OEM instructions and recommendations.

Conduct **tactile checks** of equipment or structure if safe to do so, request movement of any equipment that obstructs effective inspection.

**Immediately report any defects** such as distortion, abrasions, corrosion (*particularly where damage has caused coating or fabric deterioration*).

Any **unusual sounds** that might signify excessive vibration, wear, imbalances or shock loading should be reported to the equipment operator and / or Technical Authority immediately.

Identify and check all primary fastenings and **ensure appropriate secondary retention is in place and functioning correctly** (e.g. *split pins, safety pins, roll pins, lock wire, grubs screws, washers, locking devices etc*).

Check applications and positions of all primary fastenings and secondary retention devices to **ensure they cannot be dislodged or damaged** by nearby equipment or other forces.

Where safety securing devices such as nets and wires are applied, ensure these are appropriately rated, installed correctly and **do not present a snagging hazard**.

During activities involving the use of lifting equipment, **ensure collision checklists are developed** and adapted as required to suit current environmental and worksite factors.

**Ensure all new or modified equipment is carefully risk assessed** to ensure all fastenings, components and associated inspection criteria address the potential for dynamic forces to cause dropped objects.

**Question the robustness of all fastenings and devices that are subjected to continuous dynamic forces, including any internal components.**

In addition to routine visual inspections, consider how items and objects are affected by vibration, continuous loading and exposure to multiple factors in the local environment. Request assistance from Technical Authorities and Manufacturers in determining any requirements for enhanced inspection and preventive maintenance.



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DROPPED OBJECTS  
PREVENTION SCHEME

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# Dynamic Forces to Consider

## Shock Loading

Sudden drastic increases in load such as hammering, repetitive snagging, uneven distribution, movement over uneven surfaces that cause destructive vibrations.

## Impact Loading

Extreme force or shock applied over a short period, such as two or more objects colliding, high wind or downdraft / sidewash gusts.

## Vibration

Shakes, brandishes and oscillations that occur due to motion and movement, may be caused by imbalances in rotations, loose fastenings or uneven friction.

## Shear Force

Unaligned force or forces applied perpendicular to a surface, or in opposition such as parallel forces pushing in opposite directions.

## Tension

A force which pulls materials apart, stretching or straining, also creates the compression in a bolted joint or the tightness in wires, turnbuckles etc.

## Compression

A force that squeezes material together, such as clamping, or the strength that is gained through correctly tensioning bolted fastenings.

## Collision

Event where two or more objects exert force on each other in a relatively short period, resulting in deformations, deflections and changes in kinetic energy.

Equipment and structures designed for use in dynamic working environments will most likely incorporate specific features and fastenings that will retain functional components and elements throughout loading cycles.

Get to know what these features and fastenings are, how they function and how dynamic forces could affect their integrity.



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