

Product: MULTI TERRAIN LOADER

Model: 277C MULTI TERRAIN LOADER JWF

Configuration: 277C Multi Terrain Loader JWF00001-UP (MACHINE) POWERED BY 3044C Engine

## **Operation and Maintenance Manual 277C, 287C and 297C Multi Terrain Loaders**

Media Number -SEBU8020-06

Publication Date -01/10/2010

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## **Foreword**

SMCS - 7220

## **Literature Information**

This manual should be stored in the operator's compartment in the literature holder or seat back literature storage area.

This manual contains safety information, operation instructions, transportation information, lubrication information and maintenance information.

Some photographs or illustrations in this publication show details or attachments that can be different from your machine. Guards and covers might have been removed for illustrative purposes.

Continuing improvement and advancement of product design might have caused changes to your machine which are not included in this publication. Read, study and keep this manual with the machine.

Whenever a question arises regarding your machine, or this publication, please consult your Cat dealer for the latest available information.

## **Safety**

The safety section lists basic safety precautions. In addition, this section identifies the text and locations of warning signs and labels used on the machine.

Read and understand the basic precautions listed in the safety section before operating or performing lubrication, maintenance and repair on this machine.

## **Operation**

The operation section is a reference for the new operator and a refresher for the experienced operator. This section includes a discussion of gauges, switches, machine controls, attachment controls, transportation and towing information.

Photographs and illustrations guide the operator through correct procedures of checking, starting, operating and stopping the machine.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the machine and its capabilities.

## Maintenance

The maintenance section is a guide to equipment care. The Maintenance Interval Schedule (MIS) lists the items to be maintained at a specific service interval. Items without specific intervals are listed under the "When Required" service interval. The Maintenance Interval Schedule lists the page number for the step-by-step instructions required to accomplish the scheduled maintenance. Use the Maintenance Interval Schedule as an index or "one safe source" for all maintenance procedures.

### Maintenance Intervals

Use the service hour meter to determine servicing intervals. Calendar intervals shown (daily, weekly, monthly, etc.) can be used instead of service hour meter intervals if they provide more convenient servicing schedules and approximate the indicated service hour meter reading. Recommended service should always be performed at the interval that occurs first.

Under extremely severe, dusty or wet operating conditions, more frequent lubrication than is specified in the maintenance intervals chart might be necessary.

Perform service on items at multiples of the original requirement. For example, at every 500 service hours or 3 months, also service those items listed under every 250 service hours or monthly and every 10 service hours or daily.

## California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.**

## Certified Engine Maintenance

Proper maintenance and repair is essential to keep the engine and machine systems operating correctly. As the heavy duty off-road diesel engine owner, you are responsible for the performance of the required maintenance listed in the Owner Manual, Operation and Maintenance Manual, and Service Manual.

It is prohibited for any person engaged in the business of repairing, servicing, selling, leasing, or trading engines or machines to remove, alter, or render inoperative any emission related device or element of design installed on or in an engine or machine that is in compliance with the

regulations (40 CFR Part 89). Certain elements of the machine and engine such as the exhaust system, fuel system, electrical system, intake air system and cooling system may be emission related and should not be altered unless approved by Caterpillar.

## Machine Capacity

Additional attachments or modifications may exceed machine design capacity which can adversely affect performance characteristics. Included would be stability and system certifications such as brakes, steering, and rollover protective structures (ROPS). Contact your Cat dealer for further information.

## Cat Product Identification Number

Effective First Quarter 2001 the Cat Product Identification Number (PIN) has changed from 8 to 17 characters. In an effort to provide uniform equipment identification, Caterpillar and other construction equipment manufacturers are moving to comply with the latest version of the product identification numbering standard. Non-road machine PINs are defined by ISO 10261. The new PIN format will apply to all Cat machines and generator sets. The PIN plates and frame marking will display the 17 character PIN. The new format will look like the following:



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Illustration 1

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Where:

1. Caterpillar's World Manufacturing Code (characters 1-3)
2. Machine Descriptor (characters 4-8)
3. Check Character (character 9)
4. Machine Indicator Section (MIS) or Product Sequence Number (characters 10-17). These were previously referred to as the Serial Number.

Machines and generator sets produced before First Quarter 2001 will maintain their 8 character PIN format.

Components such as engines, transmissions, axles, etc. and work tools will continue to use an 8 character Serial Number (S/N).

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## **Safety Messages**

SMCS - 7000; 7405

There are several specific safety messages on this machine. The exact location of the hazards and the description of the hazards are reviewed in this section. Please become familiarized with all safety messages.

Make sure that all of the safety messages are legible. Clean the safety messages or replace the safety messages if you cannot read the words. Replace the illustrations if the illustrations are not legible. When you clean the safety messages, use a cloth, water and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety messages. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety message. Loose adhesive will allow the safety message to fall.

Replace any safety message that is damaged, or missing. If a safety message is attached to a part that is replaced, install a safety message on the replacement part. Any Caterpillar dealer can provide new safety messages.

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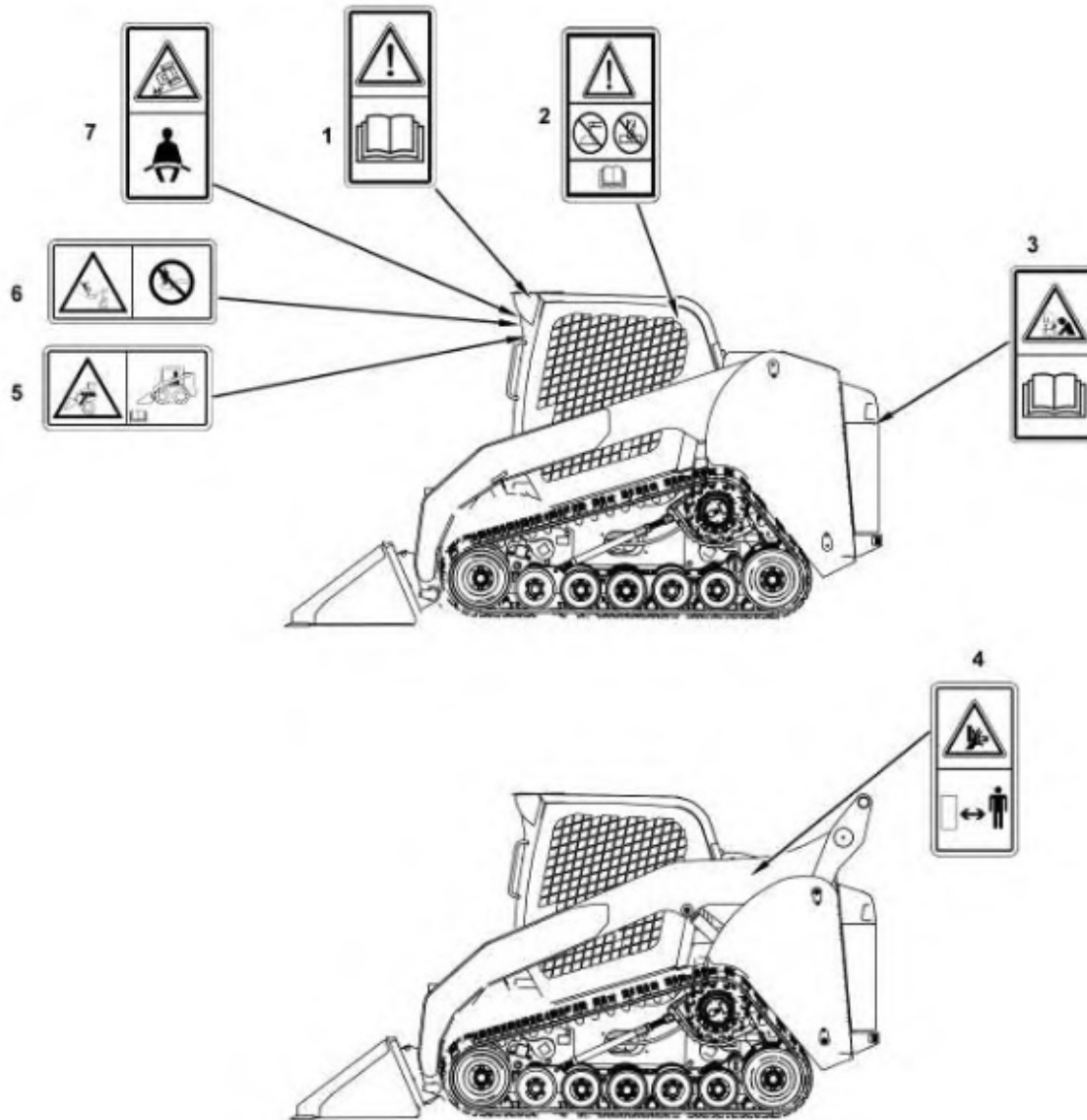


Illustration 1

g01423180

- (1) Do Not Operate.
- (2) Rollover Protective Structure/Falling Object Protective Structure
- (3) Jump Starting
- (4) Crushing Hazard
- (5) Stay Inside Operator Station
- (6) Never Permit Riders.
- (7) Seat Belt

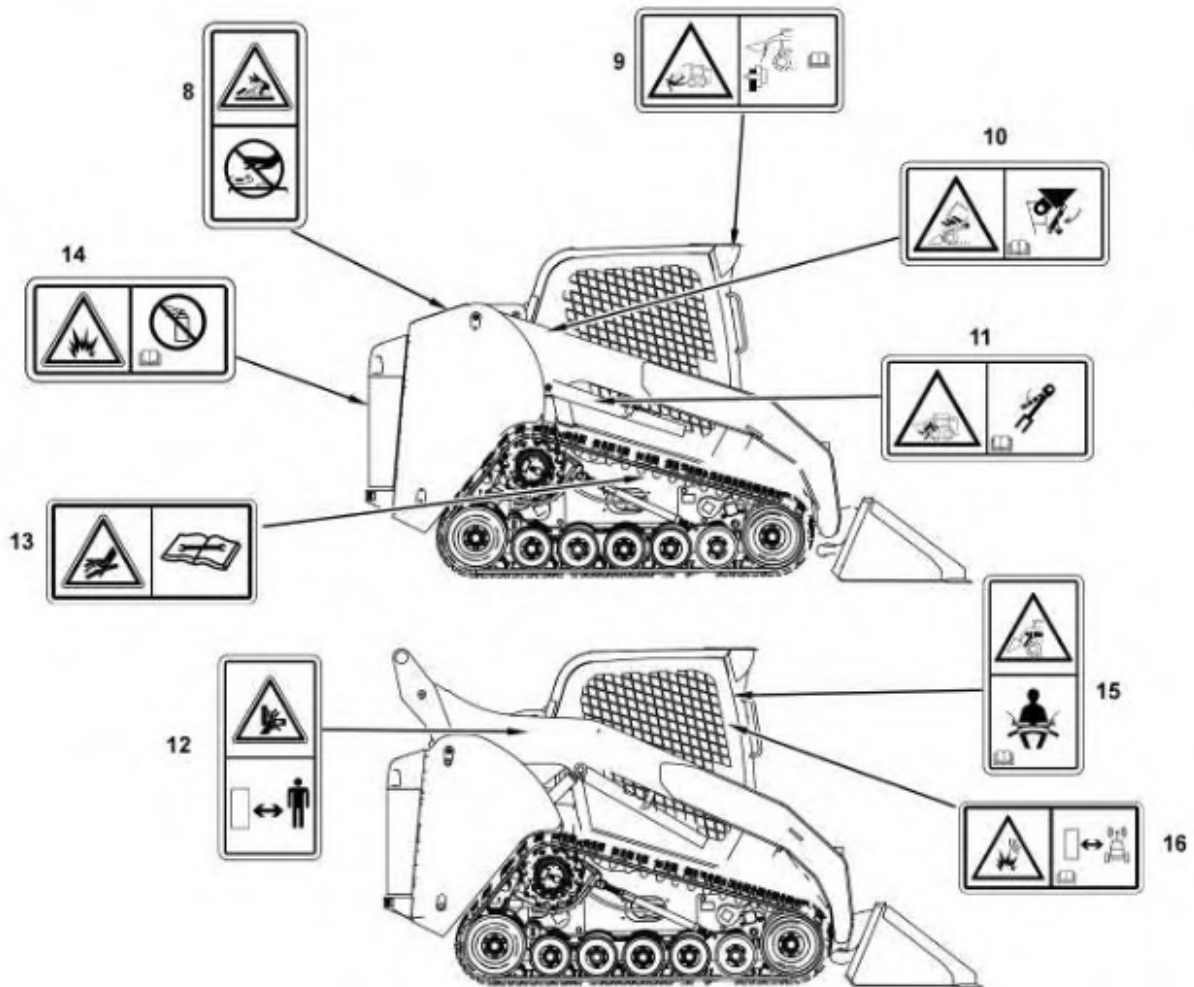


Illustration 2

g01423182

- (8) Pressurized System
- (9) Work Tool Coupler
- (10) Cab Support
- (11) Brace for the Loader Lift Arms
- (12) Crushing Hazard
- (13) Accumulator
- (14) Aerosol Starting Aid
- (15) Armrests
- (16) Product Link

### Do Not Operate (1)

This warning message is located on the front panel by the rear view mirror.



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 **WARNING**

**Read and understand the instructions and warnings in the operation and maintenance manuals. Contact any Caterpillar dealer for replacement manuals. Proper care is your responsibility.**

**Be alert! Know work conditions. Note and avoid all hazards and obstructions. Keep by-standers away when operating.**

**Fasten seat belt and lower armrest.**

**Make certain all controls are in neutral position and start engine.**

**Disengage parking brake.**

**Machine controls are active.**

**Failure to follow the instructions or heed the warnings could result injury or death.**

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**Rollover Protective Structure/Falling Object Protective Structure (2)**

This warning film and the certification film are located inside the cab on the rear left side.

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 **WARNING**

**Structural damage, an overturn, modification, alteration, or improper repair can impair this structure's protection capability thereby voiding this certification. Do not weld on or drill holes in the structure. Consult a Caterpillar dealer to determine this structure's limitations without voiding its certification.**

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This machine has been certified to the standards that are listed on the certification plate. The maximum mass of the machine, which includes the operator and the attachments without a payload, should not exceed the mass on the certification film.

### **Batteries (3)**

This warning message is located on the rear door on the left side of the machine near the positive cable terminal.



 **WARNING**

**Improper jumper cable connections can cause explosion resulting in personal injury. Batteries may be located in separate compartments, always connect positive (+) cable to positive (+) terminal of battery connected to starter solenoid and negative (-) cable from external source to engine block or frame.**

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**Crush Hazard (4) & (12)**

This warning is located on the loader arms of the machines that are equipped with vertical lift.



 **WARNING**

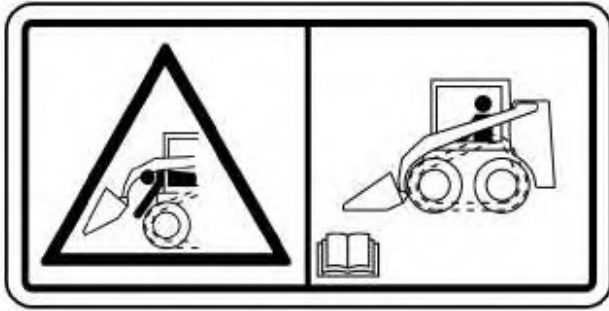
**No clearance for person in this area during operation. Severe injury or death from crushing could occur. Stay away from the work tool while it is in operation.**

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**Stay Inside Operator Station (5)**

This warning message is located on the front panel by the rear view mirror.

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 **WARNING**

**Keep your body inside the operator station while operating the loader.**

**Never work with your arms, feet or legs beyond the operator station.**

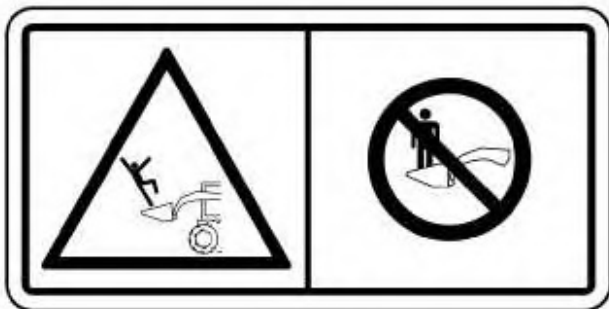
**Failure to follow the instructions or heed the warnings will result in injury or death.**

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**Never Permit Riders (6)**

This warning message is located inside the cab on the right side by the gauges.

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 **WARNING**

**Never permit riders.**

**Never use work tool for a work platform.**

**Failure to follow the instructions or heed the warnings could result in injury or death.**

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### **Seat Belt (7)**

This warning message is located on the ROPS post on the right side .

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 **WARNING**

**A seat belt should be worn at all times during machine operation to prevent serious injury or death in the event of an accident or machine overturn. Failure to wear a seat belt during machine operation may result in serious injury or death.**

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Refer to Operation and Maintenance Manual, "Seat Belt" for more information.

### **Pressurized System (8)**

This warning message is located on the right side of the radiator by the radiator cap.

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 **WARNING**

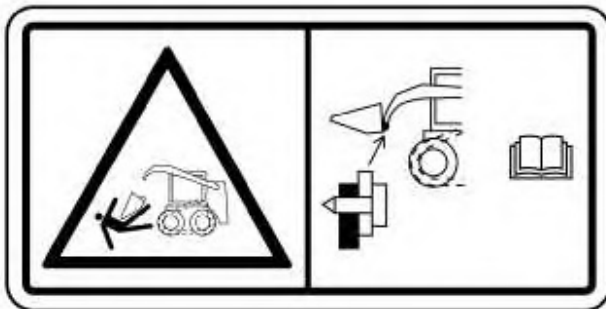
**Pressurized system: Hot coolant can cause serious burn. To open cap, stop engine, wait until radiator is cool. Then loosen cap slowly to relieve the pressure.**

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### Work Tool Coupler (9)

This warning message is located inside the cab on the left side by the gauges.

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 **WARNING**

**Improper Attachment of the Work Tool could result in injury or death.**

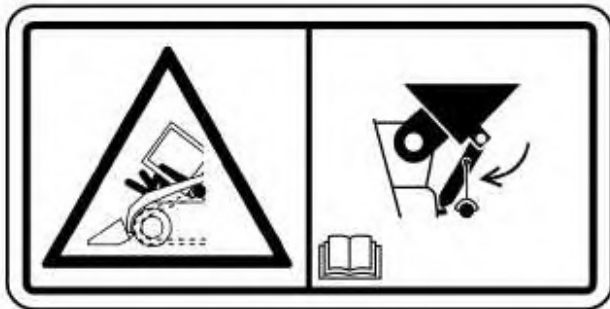
**Do not operate the machine without confirmation that the coupler pins are fully engaged. Follow the operating procedures in the Operation and Maintenance Manual.**

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Refer to Operation and Maintenance Manual, "Work Tool Coupler Operation" for the proper procedure for the work tool coupler.

### **Cab Support (10)**

This warning message is located on the right side of the machine near the cab support lever.



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**⚠ WARNING**

**Do not go beneath cab unless cab is empty and support lever is engaged.**

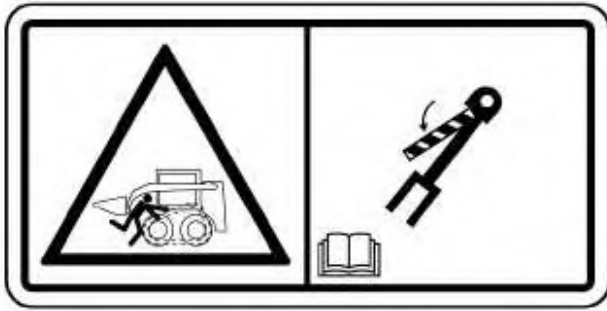
**Failure to follow the instructions or heed the warnings could result in injury or death.**

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### **Brace for the Loader Lift Arms (11)**

This warning message is located on the right hand side on the brace for the loader lift arms.

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 **WARNING**

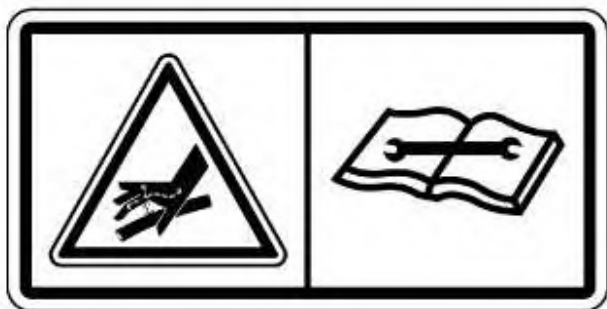
**Loader lift arm brace must be in place when working under raised lift arms.**

**Failure to follow the instructions or heed the warnings could result in injury or death.**

Refer to Operation and Maintenance Manual, "Loader Lift Arm Brace Operation" for operating information.

**Accumulator (13)**

This warning message is located near the accumulator underneath the cab. If your machine is equipped with ride control, there will be an additional accumulator in this location.



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 **WARNING**

**Accumulator may contain high pressure oil. Do not service the accumulator or any hydraulic lines until all of the pressure has been relieved. See the Service Manual for proper procedures. Failure to heed this warning could result in injury or death.**

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#### **Aerosol Starting Aid (14)**

This warning message is located on the side of the air cleaner housing.



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 **WARNING**

**Do not use ether. This machine is equipped with glow plugs. Using ether can create explosions or fires that can cause personal injury or death. Read and follow the engine starting procedure in the Operation and Maintenance Manual.**

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#### **Armrests (15)**

This warning message is located inside the cab on the right side by the gauges.

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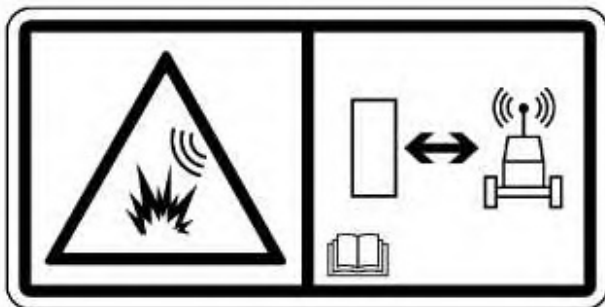
 **WARNING**

**Crush/Ejection Hazard! Could cause serious injury or death.**

**Always wear seatbelt and lower both armrests while operating machine.  
Read the Operation and Maintenance Manual.**

### Product Link (16)

This safety message is located inside the cab on the right hand window.



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 **WARNING**

**This machine is equipped with a Caterpillar Product Link communication device which must be deactivated within 12 m (40 ft) of a blast zone. Failure to do so could result in serious injury or death.**



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### **Safety Messages - Work Tools**

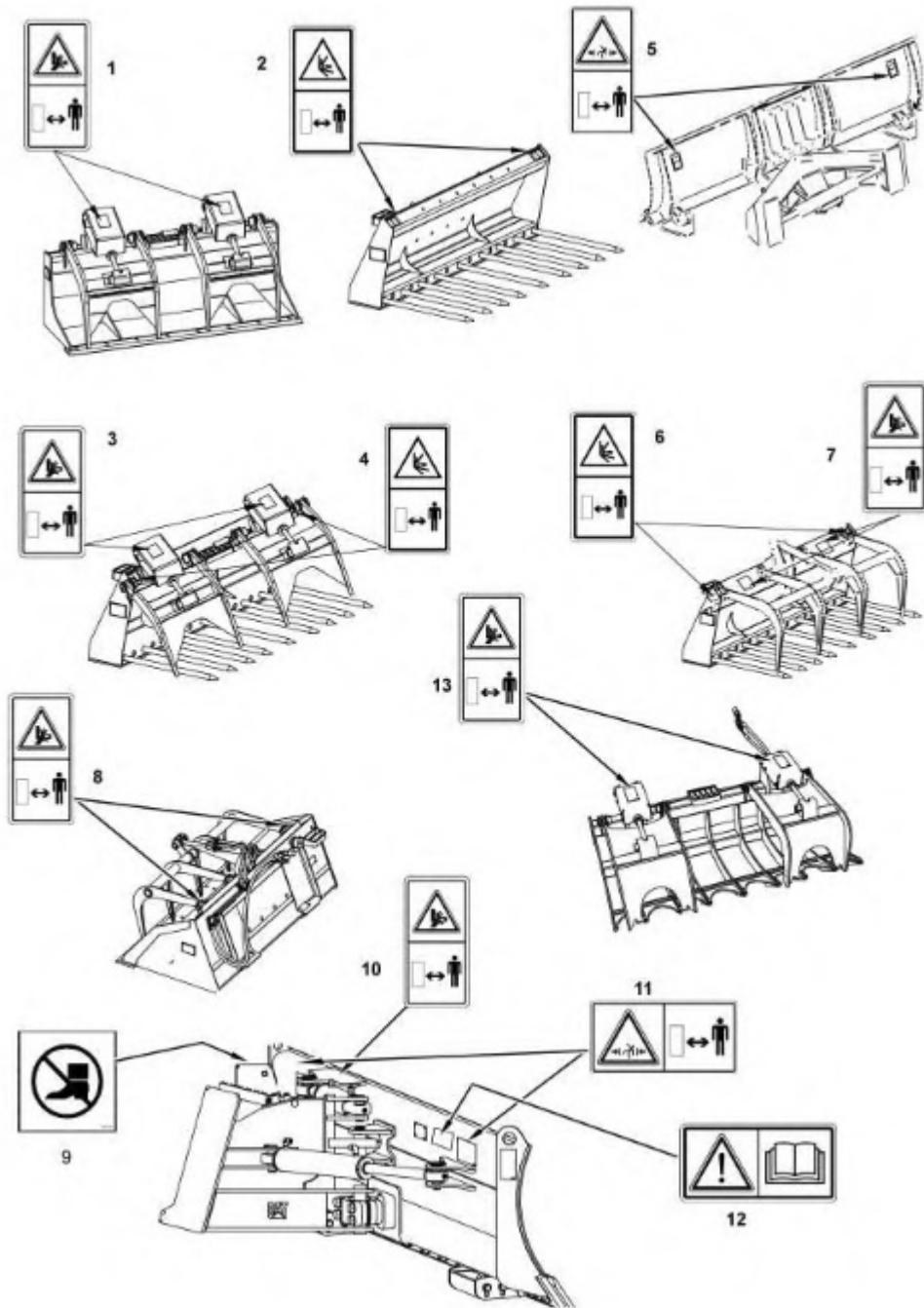
SMCS - 7000; 7405

There are several specific safety messages on these work tools. The exact location of the hazards and the description of the hazards are reviewed in this section. Please become familiarized with all safety messages.

Make sure that all of the safety messages are legible. Clean the safety messages or replace the safety messages if you cannot read the words. Replace the illustrations if the illustrations are not legible. When you clean the safety messages, use a cloth, water and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety messages. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety message. Loose adhesive will allow the safety message to fall.

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Illustration 1

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### Industrial Grapple Bucket (1)

These warning messages are located on top of the guards for the grapple cylinders.

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 **WARNING**

**No clearance for person in this area during operation. Severe injury or death from crushing could occur. Stay away from the work tool while it is in operation.**

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### Utility Fork (2)

These warning messages are located on top of the fork carriage.



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