

Mazda Logistics Global Guideline

Table of Contents

1. General rules
2. Storage
3. Trailer transportation
4. Sea transportation
5. River transportation
6. Rail transportation

Basic structure

■ Advance preparations

- < Human resource/Organization >
- < Transportation/Storage environment >

■ Prior to the operation

- < Items to be confirmed (Human resource/Organization) >
- < Items to be confirmed (Environment on the day) >

■ Operation

- < Contents of operation >
- < Precautions >

1. General rule

1) Basic items

- Product vehicle is an expensive product without wrapping. It must be handled carefully and attentively as if you bought the vehicle on your own.
- Don't get in the car other than the driver seat.
- Drinking, eating and smoking are strictly prohibited inside of /close to the cabin.
- Don't touch the vehicle body or lean on it recklessly.
- Never put a helmet, lashing tool, or writing tool etc. on the vehicle body.

2) Confirmation prior to operation

- Wear the clean work uniform/gloves and take care of shoes to prevent smudges in the cabin.
- Wear the work uniform with buttons and fasteners not exposed and use the belt without buckle.
- Don't wear the watch during cargo handling operation. In case of wearing it, put the protector such as wrist band.
- In case of rain, wear the clean raincoat and don't make the indoor space dirty.
- When feeling ill, report it to the management supervisor.
- In case of abnormal driving road surface such as snow etc, management supervisor must make a trial run and determine if the operation can be started.
- Don't use mobile phone or other audio equipment

3) Rules for transportation operation

< Basic movement >

◎ Starting a car

- ① Confirm that the all around does not have an obstacle.
- ② Secure front view.
- ③ Step over the step and get in a vehicle.
- ④ Adjust seat position, room mirror and steering wheel position.
- ⑤ Put the select lever in "N" position for AT vehicle and shift the gear to neutral position and depress the clutch pedal for MT vehicle.
- ⑥ Start engine.
- ⑦ Don't depress the accelerator suddenly to prevent sudden acceleration.

◎ Stopping/Parking a car

- ① Decelerate slowly and park a vehicle in the designated place.
- ② Set the shift lever to "first" or "reverse" position for MT vehicle and to "parking" position for AT vehicle, prior to STOP the engine
(※ For MT vehicle, put the gear in "first" on the upward slope and in "reverse" in the flat surface or downward slope.)
- ③ Apply the side brake (hand/pedal type) completely.
- ④ Make sure all switches are turned off, close windows, stop wipers, stop fan and close vents.
- ⑤ Put the key in the model-specific storage place (cup holder etc.)
- ⑥ Set the driver seat to the full sliding back position and steering wheel to top position
- ⑦ To secure the space for the person getting in the next, set the steering wheel to the position as of plant shipping (at highest and pushed in all the way inside)
- ⑧ Fix seat covers and floor mats.
- ⑨ Be sure to close the door.

< Items to keep in mind (driving) >

- Follow traffic signs such as speed limit, stop and/or one-way signs etc. max speed 30 km/h and max 50Km/h on main lanes
- Set the driver seat in the appropriate position.
- Don't hold a cell phone etc. while driving.
- Sudden starting is never allowed.
- Turn on headlights.
- Stop the car before on the gap of the road and slowly pass it.
- Have other person guide the route when driving backwards.
- Don't turn steering wheel when car is parked.
- When you find something is wrong with the vehicle, report it to the management / supervisor.

<Items to keep in mind (parking)>

- Set the front wheels straight and put the steering wheel in the straight driving position.
- Set the parking brake during logistics, not during storage.
- Put the select lever in "P" position for AT vehicle and shift the gear to 1st or reverse position for MT vehicle, prior to STOP the engine
- Make sure all windows and doors are closed, wipers get down to the bottom, and mirrors are folded.
- Make sure all electronic devices such as lights, fan are turned off and vents closed.
- Put the key in the model-specific storage place (cup holder etc.)

4) Car washing standard

- In case of the product vehicle becoming dirty, wash the car to maintain quality of the vehicle and secure safety for driving as long as it doesn't harm efficiency of transportation significantly.

<Items to be considered about needs of car-washing >

Following shows types of smudges and car washing criteria corresponding to them.

- ◎Bird dropping, seeds, iron powder, soot, grease, oil → Car washing is required.
- ◎Dust, dirt and water condensation → To be determined based on its degree.

Car-Washing is must	① Bird dropping 	② Seed 	③ Iron powder 
	④ Smoke 	⑤ Grease 	
To be judged	⑦ Dust 	⑧ Dirt 	⑨ Condensation 

<Precautions in handling dirty vehicles>

Don't operate wipers before washing a vehicle.

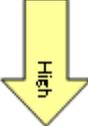
Don't try to rub off dirt with cloth etc.

Don't use hard brush (ex. deck brush) for body washing.

◇Car washing method

⊙ Standard

○ Needed depending on situation

Action level	①	②	③	④	⑤	⑥	⑦	⑧	⑨	
	Shower wash. machine	○	⊙		⊙			⊙	⊙	⊙
	High press. wash. machine	⊙			○		○	○	○	○
	Hand washing									
	Special removal		○	⊙		⊙	⊙			

<Special removal>

②Seeds···If seeds are strongly attached and cannot be removed with shower car-washing machine, remove them by hand.

③Iron powder···Use the designated fluid for removing iron powder and remove it with flannel.

⑤Grease···Wipe it off with white gas.

⑥Oil···Wipe it off with white gas.

◇Criteria to determine if car-washing is required or not in terms of dust, dirt and condensation.

(1) When you can visually confirm dust or dirt is piled up on the wiper blade.

(2) When the wind screen is dirty enough to block driver's vision in driving the car.



2. Storage Quality

1) Development of storage environment

① Road surface

- Cover road surface with the hard material such as asphalt.
(Regarding paving strength, the wheel load of entering vehicles must be considered)
- Set the slope properly for better drainage of rainwater.
- When dent occurs such as road depression, maintenance work is required to prevent accidents and/or overall quality damages.
- Remove pebbles, dust and dirt on the road surface in the regular cleaning to prevent chipping or smudges.
- Mow the grass regularly because thick trees or grass around the storage area lead to spread of seeds and attachment of bird droppings and bugs.
- Regularly clean up dirt or garbage that are piled up in the ditch of the storage place because they may cause flooding in case of heavy rain.
- Draw white lines so that vehicles can secure the space of 30cm/12" or more in back and forth direction and 50cm/1.7' or more in left and right direction. (Lines are drawn at every 225cm/7.5' width or more in Mazda.)
- When the white line gets lighter, it must be drawn again.



② Illumination

- Set up illumination for antitheft/operational purposes. Target LUV value is 50 lux.

③Antitheft action

- Set up fences and alarming systems to secure safety.
- When people other than logistics operators come in to the storage zone, confirm purpose of their visit and make sure product vehicles won't be damaged. If necessary, allocate a guard to watch them.

2) Storage work

①Minimum vehicle distance

- 50cm/1.7' or more laterally (when measured at the most projection point of the vehicle.)
- 30cm/12" or more back and forth (bumper to bumper)
- These distance are the minimum distance, so bigger distance than these minimum distance are OK.

Each country can set vehicle distance depends on the situation but do not be less than a standard mentioned above.

- Be sure to open the driver side door in the place where it doesn't touch the neighboring vehicles or poles.

②Driving speed

- Maximum speed is 30 km/h and max 50Km/h on main lanes
- 20 kph/15mph or less when driving a vehicle within 3m from other product vehicles parked.

③Countermeasure against falling objects

- Don't park the car under or near the illumination pole.

3. Trailer transportation

A driver who is responsible for vehicle transportation and his/her management supervisor must do trailer maintenance control at any time and pay attention to the following points to take any possible measures for safe transportation.

■ Advance preparations

1) Condition of person involved

- Operation supervisor must conduct training for operators beforehand so that they can fully understand this material and model-specific handling manual.
- Drivers who are involved in vehicle transportation must be qualified.
- For operators, their motivation must be enhanced continuously by testing their operation level and ranking it regularly.

2) Condition of trailers before loading work

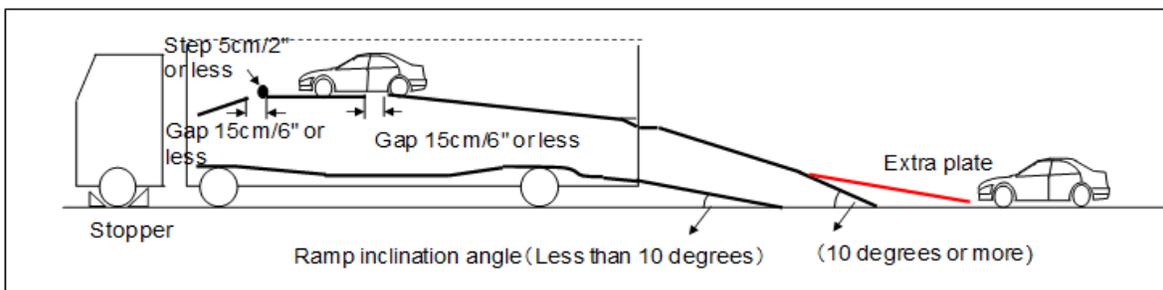
- Chock belt and wheel chock must be placed on the lashing spots beforehand.
- Make sure that preventive actions are taken to prevent spread of hydraulic oil and corrosion on the machine for going up and down.
- Check scratch/damage wear of chock belt and replace it if it's worn or damaged.
- Confirm if any unnecessary object exists on the ramp, platform or the driving road.

3) Items to keep in mind

Key inspection spots	Risk
Platform, ramp, wheel chock, belt	Leak of corrosion fluid, expanded step or gap due to deformation
Hydraulic machine	Oil leak

<Trailer standard>

- Step of trailer platform shouldn't be 5cm/2" or less and gap should be 15cm/6" or less for the trailer platform.
- Ramp angle must be less than 10 degrees. (If it's more than 10 degrees, action is required to ease the situation like use of extra plate etc.)



■ Loading operation

1) Confirmation before starting operation

- People who are involved in vehicle movement must follow the dress code and work on the operation in a clean condition.

2) Loading

- Conduct walk-around check before loading.
- Stop the vehicle in front of the ramp.
- During the loading, open the driver side window, stick your head out of the window and check forward visually.
- During loading and unloading, drive the vehicle very slowly. Don't exceed 10kph/6mph.
- Loading must be done by moving the vehicle forward. Don't load the vehicle by running it backwards unless you have the specific reason.
- When driving the vehicle backwards or doing operation in narrow or dark areas, put the guide to watch the operation.

<Criteria for loading>

- When product vehicles are loaded on the lower floor, only load the models that can secure 10cm/4" or more gap between their roof and trailer's upper floor platform.
- Secure 10cm/4" or more interval in back and forth direction between product vehicles loaded.

3) Parking/Stopping a car

- Set the front wheels straight and put the steering wheel in the straight driving position.
- Pull out the parking brake.
- Set the shift lever to "low" or "reverse" position for MT vehicle and to "parking" position for AT vehicle, prior to STOP the engine.
- After vehicles are loaded on the upper floor of the trailer, confirm if there's any fluid leak or not.

4) Lashing

① Wheel chock

- Don't raise the wheel chock higher than bumper.
- Set wheel chock from the front tires for safety reasons.
- Minimize the gap between tire and wheel chock and fix it properly on the platform.
- When stopping place is inclined, use 4-point wheel chock. Use the biggest wheel chock you have for tires on the lower side.
- Don't use rusty wheel chock because it causes damage to wheels or body painting.

② Wheel lashing

- Don't raise the lashing belt higher than bumper.
- Install the lashing belt by placing it on top of the tire straight without looseness.
- Don't use the lashing belt with rusty metal fixtures because it causes damage to wheels or body painting.

③ Tie-down

- Catch tire-down hook to only the points designated on the vehicle.
- Don't use the rusty hook because it causes damage to the underbody.



■Quality control during transportation

Driver is responsible for controlling transported vehicles and strives to ensure the safe transportation. At the same time, for our improvement of transportation quality, he/she reports the difficulties/challenges they noticed during transportation to Mazda each time.

<Items to keep in mind>

- Slow down the trailer on the bumpy road.
- Check looseness of lashing more than once a day.
- During transportation, if the driver leaves the trailer without guide, be sure to lock all vehicles loaded.
- In case of the accident during transportation, it will be handled under the rule specified beforehand.
- If the delay of transportation is predicted, it must be promptly informed to the contact specified beforehand.
- Avoid roads known with low hanging tree branches.

■Unloading operation

Driver should be aware that he/she themselves are exhausted after long-distance transportation. Therefore, thinking that unloading operation has the highest risk, they should ensure the safe operation until its end.

<Items to keep in mind>

- After arriving at destination, the driver parks the trailer at the designated parking lot.
- When unloading vehicles, take safety actions by placing cones etc. for areas where general vehicles or people may come in.
- Never rush the unloading operation.

4. Sea transportation/Ocean-going ship

■ Advance preparations

Shipping business operator responsible for vehicle transportation and its master of ship must do maintenance control of loading and unloading facilities at any time and pay attention to the following points to take any possible measures for safe transportation.

1) Condition of person involved

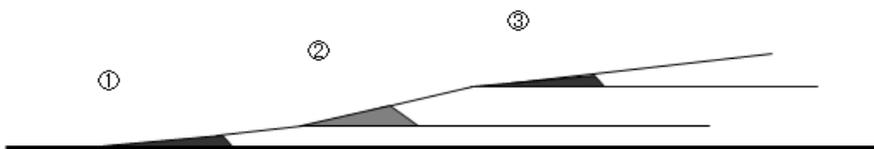
- Operation supervisor must conduct training on this material and model-specific handling manual for operators. Then, all operators fully understand them.
- Drivers who are involved in vehicle transportation must be qualified.

2) Onboard condition before vehicle loading onto the vessel

- Clean inside the ship so that there's nothing that may damage loaded vehicles is left in the ship such as residual of previous voyage, smudges, garbage, liquid etc.
- Wipe off oil on the car deck to prevent slippage.
- Make sure there's no corrosion on onboard bulkhead and car deck etc., which may damage product vehicles.
- For dangerous areas in the ship (Ex. Call gate, Escape, and Gap between car deck and outer board etc.), take safety measures with ropes or chain etc.
- For areas where vehicle may touch (such as onboard stanchion), place the caution sign and apply protectors such as rubber sheet.
- Articles for ship must be stored in the hanger. Never put them in the cargo space.
- Take measures to prevent slippage on the stern ramp and inner ramp.
- Create environment to ensure the slopes never exceed the inclination angles shown below.
(If the angle exceeds, spread the safety board or mat etc. to prevent hitting of vehicle's nose(bumper), belly(underbody) and buttocks(rear bumper) on the floor in loading product vehicles)

[Maximum value of slope angle]

	①	②	③
Outer Ramp	7°	17° *	7°
Inner Ramp	7°	15°	7°



3) Preparation for cargo handling before loading onto the vessel

- Adjust the draft and determine the best angle of the stern ramp prior to vessel arrival in port.
(Note) Never adjust the draft after the vessel reaching the shore.
- When setting the stern ramp, place the steel plate etc. for protecting the pier.
- Loading operators are allowed to step on board after setting the stern ramp.
- Use the lashing material with its hook covered with the protective layer.
- Check the lashing material beforehand. Don't use the ones with worn protective layer of belt/hook.
(Particularly, never use the one with hook metal exposed because it has a high risk of causing a scratch to the vehicle.)
- Use the lashing material that has met the following criteria.
(①Length : 100cm/3.3'~135cm/4.4', ②Rupture strength : 500kgf/1100 lbs. or more)
- Organize lashing material prepared for vessel loading in the designated place by hanging them on the outer board etc. Don't put them on the passage for vehicles.

4) Product vehicle inspection before loading onto the vessel

- Conduct walk-around check of the body before getting on the vehicle to confirm there's no damage.
- Make confirmation with finger pointing and call.
- If any scratch or smudge is found during the inspection, report it to the supervisor and receive instruction.

<Check items>

- ① Check of scratches, dent and smudges
 - Body appearance and step on the driver seat side
 - If there's any damage caused by falling object (bird dropping, iron powder, oil etc.)
 - Cracks and scratches of tires and wheels
 - Cracks and scratches of glasses and lighting equipment
- ② Is the door edge protector installed in the correct position?
- ③ Is there any misalignment or torn on the vinyl cover or floor paper mat?
- ④ Is there any smudge on the instrument panel or door around the driver's seat?

■ Operation of vehicle loading onto the vessel

All operations must be done in safety. Also, expected goals can be achieved by the fact that people allocated in each site fulfill their own roles and responsibilities. Therefore, other than instruction or direction, no selfish behavior should be allowed by their own decision. Operation must be performed in an organized manner.

1) Confirmation before starting the operation

- People who are involved in vehicle loading onto the vessel must follow the dress code and work on the operation in a clean condition.
- Operation supervisor must gather operators before starting operation and give clear direction on operation place and items to keep in mind.
- Do the test drive with the support car in the hold or driving passage to take safety measures in dangerous spots.

(Ex. Placing cone cap, stretching a rope with sign attached.)

2) Driving for loading onto the vessel

- Drive the vehicle instructed to be loaded onto the vessel from the pier to the cargo stowage deck in safety.
- Secure 5m/16.4' or more distance to the preceding vehicle. (Ref.: At such distance, all tires of the preceding car can be seen by the driver.)
- Don't start the car suddenly or apply sudden braking or steering as much as possible. Drive the vehicle slowly.
- Never exceed the speed limit (20 kph or 12 mph)
- Don't drive the vehicle backwards other than stowage.
- Stop the vehicle in front of the stern ramp.
- Turn on the head light during the driving onboard.
- Starting with the lead car, vehicles are driven in the determined order. Support car runs at the end of the line.
- At ramp way and inner ramp, after the preceding vehicle goes up and down, the next vehicle must be entered.
- In case of tall vehicle driving, be careful of deck height. If it's concerned, the guide must be in place before loading.
- Make sure vehicle's nose (bumper), belly (underbody) and buttocks(rear bumper) don't hit the floor when the vehicle runs on the stern ramp or inner ramp.

Hitting of vehicle nose, belly, and buttocks



3) Stowage

① Vehicle distance

Vehicle to vehicle : Back and forth=Bumper to Bumper 30cm/1', Lateral=Door to Door 10cm/4"

Vehicle to object : Back and forth/Left and right=30cm/1' or more

② Stowage method

- Passage must be secured on the driver's seat side. Operator gets on/off the vehicle from driver seat side.
- Standard width of the passage is 50cm/1.7'(at which the driver can open the door and get on/off the vehicle)
- Passage is used for lashing and ship crew's walking to check lashing condition during voyage.
- Passage is created in the center of the deck from front to rear of the ship.
- All vehicles must be stowed in backwards direction in principle so that they can be driven forward while unloading operation.
- Vehicles must be stowed in the horizontal place as much as possible (except onboard slope).
- Stow vehicles in a way that the driver can get on the vehicle from the driver seat side when they are unloaded.

Sketch for stowage driving



- Vehicles must be stowed in parallel with vessel front-end line.
- Vehicles in the same carline must be collectively stowed as much as possible.

4) Lashing work

Specified number of lashing must be securely provided for each of the vehicle from the specified point.

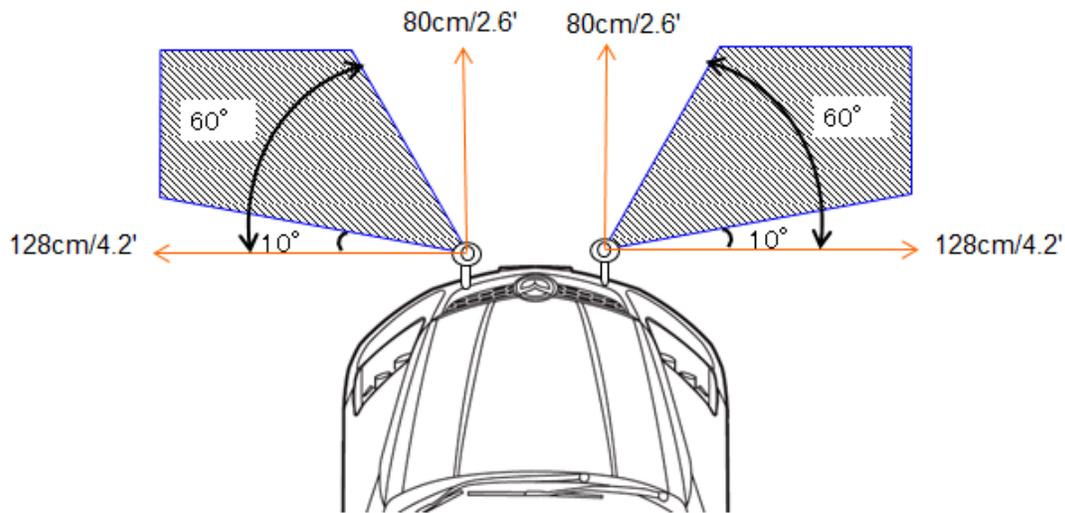
① Items to keep in mind during lashing operation

- Make sure lashing material doesn't make contact with the vehicle.
- Don't put a hand on the product vehicles.
- Be careful of other vehicle passing and don't give any damage/smudge to the vehicle. Particularly, be careful about carrying lashing material.
- In case of cross lashing, make sure lashing belts don't come in contact with each other.
- After completing the lashing, be sure to press the lashing belt once and confirm the strength of lashing.
- Checker must perform the severe check of forgotten lashing or concerns etc. every time loading of each vessel is completed.

② Range of lashing

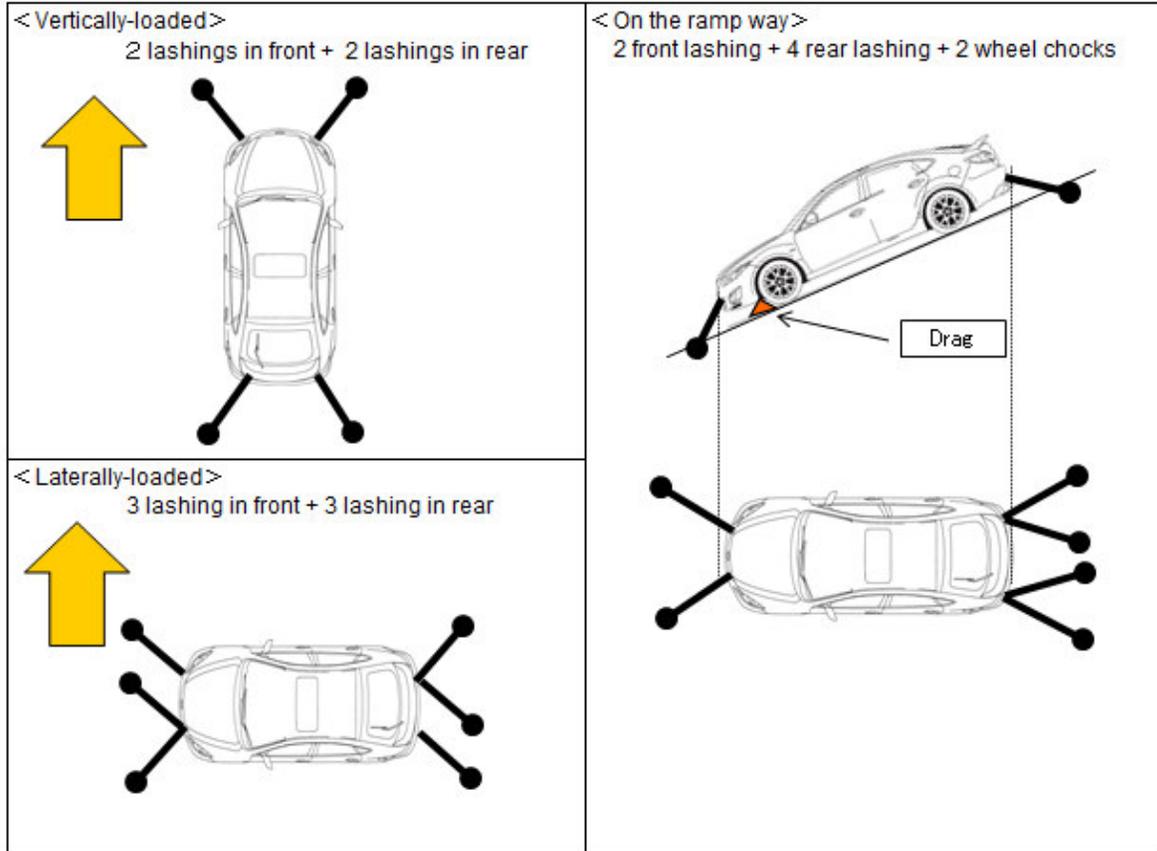
When lashing is made, onboard lashing points must be secured as shown in the following range from the lashing points of the product vehicle.

However, if the lashing belt comes in contact with other product vehicles, lashing can be done in other range.



③ Required number of lashing

- Secure 2 lashings for the vertically-loaded vehicle in front and rear respectively (4 points in total), and 3 lashings for laterally-loaded vehicle in front and rear respectively (6 points in total).
- Secure 4 lashing spots in upper side and 2 spots in lower side for the stowed vehicle on the ramp way. Put 2 drags on the lower tires.
- In case of special treatment such as heavy weather/winter, one more lashing must be added in front and rear respectively.
- Lashing will be added if there's no appropriate angle in place or lashing points not aligned.



④ Lashing tool (eyebolt, hook etc.)

- 3 points or more lashing belts can be caught in opening portion.
(Size of opening portion must be more than 35mm/1.4" x 55mm/2.2" in principle.)
- Endurance strength should be strong enough to retain 3 lashing belts with 500kgf/1100 lbs. load applied for each.

■ **Transportation control during voyage.**

Master of ship must control and inspect transportation vehicles and ensure safety transportation. At the same time, training for the crew must be conducted regularly for improving transportation quality.

1) Inspection of vehicle/lashing condition

- During on-board inspection, inspector must wear clothing that doesn't damage the vehicle (no buttons/belt).
- After departing from embarkation point, check the lashing condition of all vehicles early. Fasten the lashing if it's loosened and apply other lashing spots if the lashing angle isn't good.
- Afterwards, inspection must be done regularly and every time after going through heavy weather.
- When walking on the deck for inspection, inspectors must walk on the passage specified.
- While walking, don't get on top of the vehicle or touch the vehicle by hand or elbow.
- Be sure not to make the illumination device or lashing tool etc. come in touch with vehicles.
- When your hind leg is raised while walking, be careful not to hit the bumper etc.

2) Deck control

- Be careful about water leak or oil leak on the hold from tanks or pipes.

■ Operation of unloading from the vessel

All operations must be done after safety is confirmed. Also, the experienced supervisor must be allocated on the spot.

Every time you get a chance, instruction training must be implemented for operators.

1) Advance preparation

- Operation supervisor must conduct training beforehand so that every operator can fully understand this material and model-specific handling material.
- Operation supervisor gather operators before starting the operation and give clear direction about operation spots and items to keep in mind.
- Do the test drive with the support car in the bulk or driving passage to take safety measures in dangerous spots.
(Ex. Placing cone cap, stretching a rope with sign attached.)
- During Pre-OPS meeting "hot spots" (danger and ship structures) must be shared between crew and Stevedores
- Drivers who are involved in vehicle transpiration must be qualified.

2) Unlashing operation

- Walk the passage made in the hold.
- Don't get on top of the product vehicle or put something on it.
- Don't put your hand on the vehicle while operation. When the operator stands up, don't put their hand on the vehicle.
- Removed lashing belts must be gathered (use broom) not to prevent unloaded vehicles from driving.
- Pay the closest attention not to have the metal fixture of lashing belts touch the product vehicles when lashing belts are removed or cleaned up. Use broom to collect the lashings

3) Unloading operation

<Control responsibility>

- Allocate 1 guide per 1 gang at least.
- The guide must wear the specified uniform or armband and give clear instructions or directions.
- Send the clear signal with a blowtorch and/or a whistle etc for guidance.
- When the driver have the vehicle get out of the narrow space, it can only be done during supervision. Be sure to allocate the guide and start the vehicle slowly following the instruction.

<Driver>

- After confirming unlashing is finished, get in the vehicle.
- Turn round the vehicle near the onboard slope wide and drive it very slowly.
- Turn on the headlight, open the window and drive the designated passage while driving onboard.
- While driving, never overtake other vehicles. Keep the certain distance from the preceding vehicle so that the driver can see all rear wheels of the preceding vehicle.
- Prioritize the vehicles coming from the lower hold. Vehicles coming from the upper hold must be stopped or driven slowly.
- Be sure to keep the speed limit (20kph/12mph or less).
- While driving the inner ramp or stern ramp, make sure hitting of vehicle's nose, belly and rear end on the floor never occur.
- Be sure to turn off the headlight at the exit of the vessel except during nighttime or rainy weather.
- Conduct inspection of product vehicles after unloading, which is just the same as described in "4) Product vehicle inspection before loading onto the vessel in advance preparations".

<Criteria of vehicle distance during temporary storage>

Vehicle to vehicle : Back and forth=Bumper to Bumper 30cm/12",

Lateral=Door to Door 50cm/1.7'

Vehicle to object : Back and forth, right to left=50cm/1.7' or more

Please refer to the section 2 "Storage Quality" for other criteria or standard during temporary storage.

5. River transportation

■Advance preparation

<Human resource/Organization>

1)Condition of person involved

- ①Operation supervisor must conduct training on this material and model-specific handling manual for operators beforehand and confirm operators fully understand them.
- ②Drivers who are involved in vehicle transpiration must be qualified.

<Transportation/Storage environment>

2) Shipping condition prior to loading

- ①Clean inside the ship so that there's nothing that may damage the loaded vehicles is left in the ship such as residual etc. of previous voyage, smudges, garbage's, liquid
- ②Wipe off oil on the car deck to prevent slippage.
- ③Make sure there's no corrosion on onboard bulkhead and car deck etc., which may damage product vehicles.
- ④For areas where vehicle may touch (such as passage or onboard area), place the caution sign and apply protectors such as rubber sheet.
- ⑤Articles for ship must be stored in the hanger. Never put them in the cargo space.
- ⑥Create environment to ensure the slopes never exceed the inclination angles shown below.
(If the angle exceeds, spread the safety board or mat etc. to prevent hitting of vehicle's nose, belly and buttocks on the floor in loading product vehicles)
- ⑦Gap among ship/floating pier/lamp connection must be less than 15cm/6".
(If it exceeds, be sure to put the gangplank.)

■Before operation

<Items to be confirmed (Human resource/Organization) >

1)Confirmation before operation start

- ①People who are involved in vehicle loading onto the vessel must follow the dress code and work on the operation in a clean condition.
- ②Operation supervisor must gather operators before starting operation and give clear direction on operation place and items to keep in mind.
- ③Do the test drive with the support car in the hold and/or driving passage to take safety measures in dangerous spots. (Ex. Placing cone cap, stretching a rope with sign attached.)

■ Loading vehicles onto the vessel

<Loading operation standard>

- Drive the vehicle to the ramp straight in loading and unloading
 - Drive the vehicle very slowly in loading and unloading. The speed shouldn't exceed 10kph/6mph.
 - ※ When the vehicle enters to the ramp with 8 degree inclination at 15kph/10mph, the vehicle nose (bumper) may hit on the floor and be damaged.
 - Turn on the headlamp when driving onboard.
 - Drive the vehicle forwards generally. Don't drive the vehicle backwards when loading in principle.
- (Allocate the guide when the vehicle must be driven backwards.)

<Stowage operation standard>

- Keep 10cm/4" or more distance in back and forth 15cm/6" or more in right and left between stowed vehicles.



■ Lashing work

<Items to keep in mind>

- Be sure to perform lashing after the vehicle is completely stopped and the driver gets out of it.
- Lashing operator should not stand behind the vehicle moving backwards.
- Secure 2 more vehicle chock spots when the vehicle is stowed on the slope.

Wheel chock



6. Rail Transportation

■ Advance preparation

People responsible for rail transportation and their supervisor must do maintenance control of the freight car at any time and pay attention to the following points to take any possible measures for safe transportation.



<Personnel>

- ① Personnel to wear clean clothing, free of objects that could cause damage to the exterior or interior of the vehicle. Tools or other objects which could cause damage are not to be carried in pockets when handling vehicles. If gloves are worn, they are to be clean.
- ② Personnel are not to wear jewelry such as rings, watches, necklace or other dangling objects that could cause damage or be a safety hazard.
- ③ Personnel involved in securing of vehicles are to be familiar with the tie-down procedures required for use of straps or chocks with various manufactures. proper materials to make repairs is to be available.

<Rail equipment>

- ① Loading ramps are to be maintained in good condition, with appropriate maintenance records kept.
- ② Locking pins, cables, hydraulic hoses, brakes, and support members are to be regularly inspected for proper working condition and repaired if defective.
- ③ Locking pins, leveling jacks, and stabilizers are to be properly positioned after the ramp is adjusted to the desired height for loading.
- ④ Ramp decks, bridge plate assembly, and tire tread areas to be maintained in good repair and free of sharp metal edges which could damage tires or contact the undercarriage of vehicles.
- ⑤ Any tools carried on a loaded multi-level are to be carried in the hand closest to the multi-level side shielding and away from the vehicles.

- ⑥When spotting multi-level equipment for loading, multi-levels with over 8cm/3" difference in deck heights are not to be coupled together.
- ⑦Body type of the rail car (ex. closed type or mesh type) should be adopted based on the consideration of preventing any quality damage by rail dust, bird dropping and so on.

■Operation of vehicle loading onto rail car

<Vehicle Handling>

- ①No more than one vehicle is allowed on the ramp at one time. Speed is not to exceed the compound's posted speed limit for driving on ramps, generally recommended at 8-12 k.p.h/5-8 m.p.h or less if conditions dictate. Speed limit signs are to be signed accordingly.
- ②Transmissions are to be placed in "P" for AT, "1st" for MT. Ignition keys are removed after "Lock" position and placed in the cup holder.
- ③Front wheels are to be set straight ahead.
- ④Vehicles are to have the parking brake fully engaged.
- ⑤Drivers are to enter and exit only through the left front door. Doors are to be opened carefully to prevent damage by contact with any part of multi-level.
- ⑥Protective seat and floor covers are to be repositioned, if necessary, before entering and after exiting a vehicle.

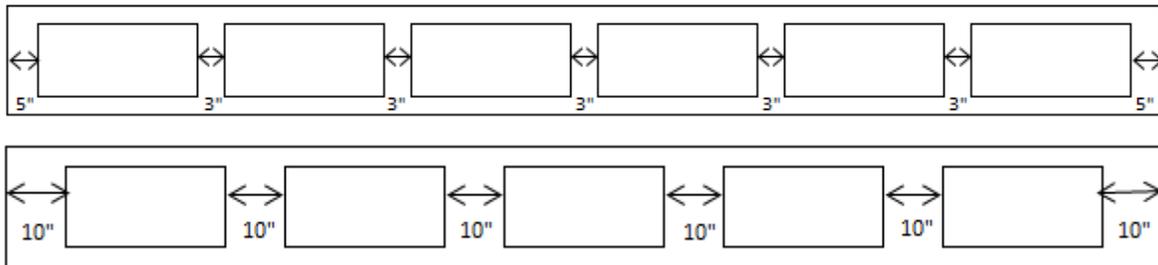
<Vehicle Loading>

- ①Vehicle received for rail transportation are to be inspected by a qualified inspector.
- ②Loading ramps are to meet manufacturer's requirements and allow for damage free loading. Except for ramps dedicated to handle high clearance vehicles shipped on bi-Level autoracks, the ramp design is to provide no greater than a 6 degree angle of approach from the ground to the ramp and departure from the ramp to the multi-level.
- ③When spotting multi-level equipment for loading, multi-levels with over 8cm/3" difference in deck heights are not to be coupled together.
- ④Personnel are not to touch the exterior of the vehicle except door knob.
- ⑤No more than one vehicle is allowed on the ramp at one time. Speed is not exceed the compound's posted speed limit for driving on ramps, generally recommended at 8-12 k.p.h/5-8 m.p.h..
- ⑥A minimum of one vehicle length between moving vehicle is to be maintained at all times.
- ⑦Loaded multi-levels are not to be entrained next to open top hoppers or open gondolas loaded with stone, gravel, sand, lime, coal, soda ash, chemical, etc. subjected to wind, vapor or fume action from such commodities. Loaded multi-levels are not to be entrained next to loaded tank cars or open top loads of lumber, poles, steel, etc., when lading extends above top of rail car.

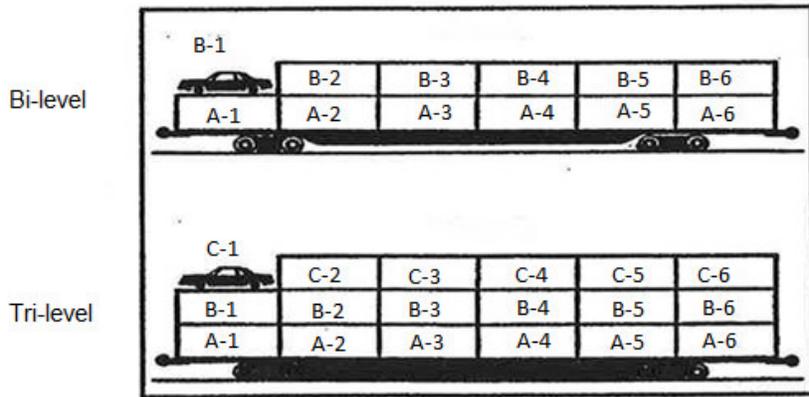


■ **Tie-down procedures for chocks and harnesses/straps**

- ① Chocks are to be placed in their storage boxes or hang on the chock hangers with harness properly secured so they do not interfere with loading.
- ② There is to be clearance between vehicle as follows:
 - 1) When loading five or less vehicles onto rail car : minimum 25cm/10" of clearance
 - 2) When loading six vehicles onto rail car : minimum 8cm/3" of clearance



- ③ The single strap with rubber is to be placed over the center of tire, slack removed, and tightened using 29mm socket and a standard 1/2 inch drive ratchet wrench with a short extension.
- ④ To release the winch, step on the foot release pedal and pull on the end of the strap.
- ⑤ Unused chocks are to be placed in their storage boxes and the straps or harness are to be attached to the hangers on the side panels. the straps or harness are to be placed in a crossed position and slack removed to prevent contact with the vehicle.
- ⑥-1 "A" deck is the lowest level position. "B" deck is the intermediate deck on tri-levels and the top deck on bi-levels. "C" deck is the top on tri-levels. (See Illustration)
- ⑥-2 Number one position is the first vehicle driven on the deck and continued in sequence. (See Illustration)
- ⑦ Extreme care is to be exercised in the handling and switching of multi-levels to avoid excessive impacts. In the interest of damage prevention, handle loaded multi-levels so coupling will be made at 6 k.p.h/4 m.p.h. or less.

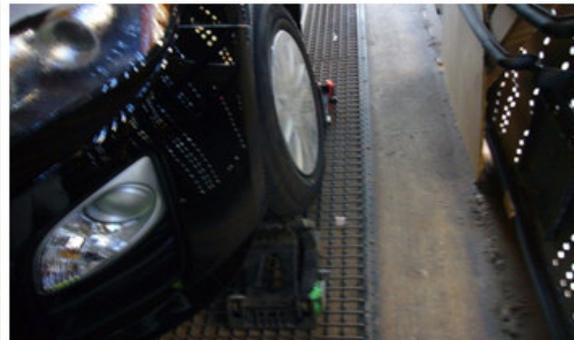


Most of case:
10 units for Bi-Level
15 units for Tri-level

Sample pictures of Tie-Down : Tri-level



Sample pictures of Tie-Down : Bi-level



Tie-Down points:

Tri-level:

Chock is placed on the front and rear tires of the chock rail side on the rail car.

Bi-level:

Two in the front, two in the rear.
Extra wheel chocks are arranged when necessary.



■ Unloading ramp

- ① Unloading ramps are to be maintained in good condition, with appropriate maintenance record kept.
- ② Ramp decks, bridge plate assembly, and tire tread areas to be maintained in good repair and free of strap metal edges which could damage tires or contact undercarriage of vehicles.
- ③ Multi-level autoracks are to be placed for unloading in such a manner that vehicles can be driven off forward.
- ④ Drivers are to maintain a minimum of one vehicle length between moving vehicles.