

Subaru Telescope Safe Driving Guidelines

1. The purpose of the guidelines and the introduction

- 1.1. These guidelines have been made to help eliminate vehicle accidents caused by or related to Subaru Telescope's vehicles. Driving a vehicle is an important duty for most employees. Subaru Telescope relies on their safe driving for its operation. Traffic accidents could cause a loss of life, which is the most tragic thing, injury of the driver, the passengers, and the other people, and the damage to the properties of Subaru Telescope and others. One traffic accident may result in a huge impact to continuation of the Subaru Telescope project.
- 1.2. Drivers must be aware of safe driving by following all traffic rules and Subaru Telescope's Vehicle Policy. Subaru Telescope must make sure to make employees drive a vehicle safely. Subaru Telescope must allow an employee to drive only when he/she is fully capable. If the employee is too tired, sick or sleepy, or has a mental issue, Subaru Telescope must evaluate the employee's condition to determine if he or she can drive.
- 1.3. Before you drive Subaru observatory vehicles, you must pass a written examination and a driving skill examination whether you drive only in town or all the way to the Subaru Telescope summit facility (A written examination is exempted if you have Hawaii Driver License or had Hawaii Driver License in the past). This training is designed to those who passed a written examination, or who are exempted for a written examination and who passed a driving skill examination. And the training covers the following items, which you should review as needed to refresh your memory even after training. The following instructions are only a guideline. Poor weather may require additional cautionary procedures. Every driver is required to practice safe driving based on this. You must take a classroom training every two years to renew the status as a driver.
- 1.4. For details of the driver qualifications, refer to Subaru Telescope Vehicle Policy.
- 1.5. Vehicle manager is Shinji Oka, Vehicle assistant manager (A) is Tae-Soo Pyo and Vehicle assistant manager (B) is Eiji Kambe.

2. At all times

- 2.1. Check the exterior of the vehicle BEFORE and AFTER drive. If you find a damage, please notify the vehicle operation center (Noriko Roth 934-5000) or email vehicle@naoj.org immediately. If we find a damage late, the vehicle would be repaired late, and that would cause inconvenience to many.
- 2.2. The driver and all passengers must wear seatbelts while in a Subaru's vehicle.
- 2.3. The driver may not use the cell phone when driving.
- 2.4. Follow all traffic rules and regulations.

- 2.5. Observe yellow traffic caution signs and posted speeds approaching curves. Control speed before entering a curve.
- 2.6. There are small green signs with mile marker numbers located on the side of the road. Mile markers can be useful if you need to report your location in case of a mechanical problem or an accident.
- 2.7. Be aware of oncoming traffic as well as traffic behind you.
- 2.8. Safe driving speed is not always the same. Vehicle location, vehicle load, weather, time of the day, road conditions, type of vehicle, visibility, driver's capability, and driver's condition may all require driving at a slower speed than the posted speed limits. Be aware of acceleration at downhill drive. Especially on the Summit Access Road from HP and above, strictly drive the speed limit or below. OMKM sends Subaru Safety Officer the report for the speed measurement. Safety Officer will keep notifying the drivers whose vehicle was recorded over the limit. If the recorded speed was 5 mph above the limit, disciplinary action will be taken. Repeated speeding may be subject to severe disciplinary action.
- 2.9. Any speeding or traffic violations that occur when driving a Subaru vehicle is the driver's responsibility.
- 2.10. Be very careful if you pass a vehicle. Subaru Telescope strongly recommends not to pass a vehicle. However, if you must pass a vehicle, make sure you still drive within the posted speed limit while passing, make sure that no oncoming traffic is seen plenty distance ahead. If there are two lanes for oncoming traffic, never cross the center line if you see oncoming traffic. Assume oncoming traffic may change the lane at any time. Don't attempt to pass multiple vehicles at a time.
- 2.11. Many accidents have occurred due to high speed. Always maintain a safe driving speed and be alert always. If you are driving without any passengers and feel fatigued or tired in any way, find a safe place to pull over and take a break and rest until you feel alert enough to operate the vehicle safely. Or, if you have a passenger who is not tired or sleepy and is authorized to operate a Subaru vehicle, ask him or her to drive.
- 2.12. Keep connecting a cellular phone to a charger and plugging the charger into a cigarette lighter. The main purpose of this cellular phone is for communication in case of an accident, or a car trouble.
- 2.13. If you ever have a flat tire or any mechanical problems when driving, stay calm and scan the road ahead to look for a safe flat area to signal and pull over as far from the road as possible. Call the vehicle operation center (Noriko Roth 934-5000) to report what has happened right away. You must park the vehicle and turn off the engine if you use the cell phone while in the vehicle.
- 2.14. A vehicle logbook is in the vehicle to keep records of destinations, departure/arrival times, names of drivers and names of passengers if any. Please complete the vehicle log when you arrive at the destination. Emergency network phone numbers, the phone number for the vehicle operation center and other important phone numbers are also in the vehicle logbook.
- 2.15. If you change a flat tire, park the vehicle in a flat area as much as possible. Keep a flat tire on a highest ground. Excessive weight of the vehicle could collapse the jack if you attempt

to elevate a tire that is located on a lower ground. Refer to the vehicle owner's manual for proper placement of the jack and instructions on how to remove the spare tire.

- 2.16. Drive recorders (camera) are installed in vehicles for driver/passenger safety and for keep evidence of drive history. Drivers must make sure the recorder is working before starting drive. Do not tamper or turn off the recorder or move directions of cameras without authorization of the vehicle manager.
- 2.17. Be properly seated for the airbag safety. This means all riders should be sitting upright with both feet on the ground, and both the lap belt and shoulder belt should be firmly and correctly in place. Placing feet on the dashboard is unsafe.
- 2.18. Eating and drinking are not restricted in all the Subaru's vehicles. However, using a non-spillable container is recommended. Wiping spills is requested if you spill in the Subaru's vehicles.

3. In case of accident

- 3.1. In case of an accident that involves loss of life, injury or property/vehicle damage exceeding \$3,000
 - 3.1.1. STOP IMMEDIATELY, but do not obstruct traffic. Warn oncoming cars.
 - 3.1.2. TURN IGNITION OFF, guard against fire.
 - 3.1.3. ASSIST INJURED, then call 911.
 - 3.1.4. SECURE LICENSE NUMBERS, makes and models of other cars involved.
 - 3.1.5. SECURE NAMES, addresses of other drivers, witnesses, injured persons.
 - 3.1.6. MAKE ROUGH DRAWING of scene showing position of cars and/or other details.
 - 3.1.7. TAKE PICTURES of the scene and damage, if possible.
 - 3.1.8. DON'T HASTILY ACCEPT CLAIM settlement at scene of accident.
 - 3.1.9. NOTIFY OUR INSURANCE AGENT (Noguchi & Associates, Inc. at (808) 596-2700).
 - 3.1.10. CALL Subaru Telescope Emergency Contact Team (ECT) at 934-5911.
 - 3.1.11. FILE "SUBARU TELESCOPE SAFETY, HEALTH AND ENVIRONMENT REPORT" no later than 24 hours to the Safety Officer.
 - 3.1.12. Supervisor must file "RCUH'S SUPERVISOR'S REPORT OF INDUSTRIAL INJURY" no later than 24 hours to Subaru's HR if an RCUH employee got injured.
- 3.2. In case of an accident that does not involve loss of life or injury but involves property/vehicle damage not exceeding \$3,000
 - 3.2.1. Make rough drawing of scene showing position of cars and/or other details.
 - 3.2.2. Take pictures of the scene and damage, if possible.
 - 3.2.3. CALL the vehicle operation center (Noriko Roth 934-5000) during the business hours. CALL Subaru Telescope Emergency Contact Team at 934-5911 during the off hours.
 - 3.2.4. If you feel uncomfortable with operating the vehicle, ask Noriko Roth or an ECT member to request an arrangement for an alternative transportation.
 - 3.2.5. FILE "SUBARU TELESCOPE SAFETY, HEALTH AND ENVIRONMENT REPORT" no later than 24 hours to the Safety Officer.

4. At the Hilo facility:

- 4.1. Reserve a Subaru vehicle from the Subaru vehicle reservation system on the NAOJ website.
- 4.2. Avoid driving alone. Arrange at least one passenger in your vehicle ahead of time. If you must drive alone, designate a monitoring person when you travel to the summit facility. You don't need to designate a monitoring person when you drive only in town or drive to another town such as Waimea. The monitoring person may be one of our staff members or other adults, who knows the following procedures. Tell the monitoring person that you are leaving. When you arrive at the summit, call the monitoring person. If the monitoring person does not receive a call or cannot verify that the driver arrived, the monitoring person should call the summit facility or other destination to make sure if the driver arrived. If the arrival cannot be verified, the monitoring person must call Emergency Contact Team (ECT: 934-5911).
- 4.3. Because the Subaru vehicle reservation system is used to keep track of the driving records, the name of driver must be accurate. If your reservation is made under ". Day crew", ". TED" or something which does not represent the driver's name, you must change it to your name before you start to drive.
- 4.4. Call MKSS Road Condition (935-6268) to check road conditions above Halepohaku if poor road condition is anticipated.
- 4.5. Grab a cellular phone and a vehicle key.
- 4.6. Enter passenger's name(s) and click your departure time on the Subaru Vehicle Reservation System using the computer near the key box.
- 4.7. Before leaving the Subaru Base Facility, Do a visual check of the vehicle. Check tires, snow chains and other vehicle accessories. Check headlight switch location, directional signal switch location, window wiper switch location, and jack location before you start to drive. If there are any service lights on or warning lights on such as check engine light, low tire pressure light or any vehicle problem, report to the vehicle team at vehicle@naoj.org, the vehicle operation center (Noriko Roth 934-5000) or Vehicle assistant manager (B) right away.
- 4.8. Check the fuel level before leaving. If the fuel level in the fuel tank is less than half full, fill the tank up at the gas station. Subaru has an account at HELE gas station at 360 Kaumana Drive. A gas charge card is assigned to each Subaru's vehicle and placed a pouch attached in the vehicle log binder. All authorized drivers are given his/her own PIN number. The PIN number is the same as your four- digit extension phone number. A different PIN number is assigned to Staff members or Visitors who don't have extension number. Please contact Accounting unit to obtain the PIN number. The vehicle refueling procedure at the HELE gasoline station is follows.
 - 4.8.1. Use the payment panel at the pump outside
 - 4.8.2. Wait for "Enter Loyalty #" sign comes out on the panel of pump and press "Arrow" mark
 - 4.8.3. Enter Loyalty number which is taped on the gasoline card in the vehicle
 - 4.8.4. Insert gasoline card
 - 4.8.5. Enter vehicle number (i.e. "8" for J-8) for Odometer
 - 4.8.6. Enter your PIN number (your four-digit extension phone number) for Driver ID
 - 4.8.7. Enter "Yes" for printing a receipt (Only one receipt will be printed)

4.8.8. Bring back the receipt to the Hilo office

4.8.9. Write your name and vehicle number on the receipt and drop it in "Gasoline Receipt" box by the vehicle key cabinet

5. From Hilo Facility to Halepohaku:

- 5.1. The legal posted speed limits are 35, 40, 45, 55 and 60 mph for the Hilo side of the Saddle Road or Daniel K. Inouye Highway. The posted speed limits on Mauna Kea Access Road are 30 and 40 mph.
- 5.2. Speeding is the cause of many accidents on the Saddle Road. Monitor the vehicles speedometer frequently and always maintain a safe driving speed. Be aware of the weather and road conditions and know the condition can change very quickly.

6. At Halepohaku:

- 6.1. Park the vehicle in an available space in the parking lot.
- 6.2. There is a white board and computer displays in the main lobby of the Halepohaku facility. Snow or ice, the weather forecast and snow chain information will be shown there.
- 6.3. Click arrival/departure time on the vehicle reservation system using the computer located in the Subaru office. You must rest at Halepohaku at least for half an hour before driving up to the Summit if you plan to stay at the Summit for eight hours or less.
- 6.4. A satellite phone (Country code: 8707, and then 7640-4784) is stored in the Subaru's office in Halepohaku. This phone is for emergency use by night crew while driving between Halepohaku and the Summit. If you determined the road/weather condition is poor and you need to secure communication while driving, you may use it during the daytime. Make sure that the night crew will know that you have a phone.
- 6.5. You may fill gas at the station at Halepohaku. Take a key with a clipboard located on the front desk of the main lobby. The station is located at the upper level from the Halepohaku main building. Turn the knob for the meter to reset to zero, unlock the gas dispenser with the key, turn the handle at the dispenser socket toward you, then start filling. Record your name, vehicle name, registration number, meter reading and gallons taken legibly in the log. After filling, raise the bar, return the dispenser, lock it and return the key with the clipboard to the front desk.

7. From Halepohaku to the Summit:

- 7.1. Use 4WD on the dirt road above Halepohaku. (4WD high range or 4WD low range)
- 7.2. To shift into and out of 4WD low range, the vehicle must be stopped and in neutral with the brake on. To shift from 2WD to 4WD high range, the vehicle does not need to stop. Use 4WD

for both uphill and downhill on the un-paved road. Follow instructions in the vehicle owner's manual on how to engage and disengage the 4WD system.

- 7.3. 4WD is recommended on an unpaved road or on a paved but icy or heavily wet road. Switch to 2WD on paved and dry road.
- 7.4. The posted speed limit is 25 mph for the Summit road and dirt road. The posted speed limit is 5 mph on the Subaru access road by the Submillimeter Array. Follow posted speed limits.
- 7.5. It is very difficult to drive right after sunrise, because you are looking straight at the sun heading east. A similar situation occurs before sunset driving toward the west. The windshield must be clean to be able to see clearly. Oncoming vehicles do not have this problem. Be cautious and drive slowly.
- 7.6. "KEEP RIGHT" means to stay on the right side of the road. Keep right all the time. Also, be aware that the road grader has the right of way. Be cautious, operator may not see you.
- 7.7. Monitor the vehicles engine temperature gauge and engine tachometer as well as your speed when driving up or downhill in low gear. Prolonged high engine RPM's can result in engine overheating and possible engine damage.
- 7.8. Be very careful if you pass another vehicle on the Summit Road. Your driving may be recognized as too aggressive by another driver even if you don't feel it. A complaint from another driver is normally reported from OMKM or MKSS to our director. The complaint will be subject to our investigation and the driver is subject to a disciplinary action. You may pass another vehicle only if directed by a driver of the vehicle ahead of yours.
- 7.9. Low-beam headlight must be used while driving in the summit area during evening.
- 7.10. Do not double-park (Do not park in front of/behind another vehicle) in the parking lot of the summit facility. Double parking may make a quick evacuation difficult in case of emergency.
- 7.11. The Safety Board recommends all drivers to park the vehicle backwards at the summit parking lot. Parking the vehicle backwards has the following advantages;
 - 7.11.1. There is a less chance of an accident if you reverse the vehicle while it is bright and while you have full of attention than you do after it gets dark and while you are tired.
 - 7.11.2. Parking backwards helps quick evacuation from the summit facility.
- 7.12. Click your arrival time on the vehicle reservation system in the staff room in the Control Building upon your arrival. Drop a key in a bin by the computer for the vehicle reservation. If you drove alone, inform your monitor that you arrived at the Summit facility safely.

8. From the Summit Facility to the Hilo facility:

- 8.1. When you depart from the Summit Facility, click your departure time on the vehicle reservation system in the staff room in the control building. Follow posted speed limits.
- 8.2. Low-beam headlight must be used while driving in the summit area during evening.
- 8.3. Use 2WD low gear to drive down on the paved and dry road. Use 4WD low range, not 4WD high range, on dirt road down to Halepohaku and downshift to lower gears to maintain a safe driving speed without having to over-use the brakes. The speed limit is 25 mph.

- 8.4. Use 2WD low gear to drive down on the paved road below Halepohaku with the up to 17% grade. To avoid brake failure caused by the overheat of the brake rotors and pads, apply engine brake by shifting to a lower gear.
- 8.5. Driving down the Saddle Road is more dangerous than driving up. While driving down the Saddle Road, other vehicles may tailgate. Do not increase your speed. Maintain a safe driving speed. If many vehicles are behind you and you feel a need to let them pass you, scan the road ahead for a safe place to signal and then pull over.
- 8.6. As a courtesy to the other drivers of Subaru vehicles, please refuel the vehicle if the fuel level is below half tank when returning to the Subaru base facility.
- 8.7. When you return to Hilo Base, remove your personal belongings and cell phone from the vehicle. Fill in necessary information in the vehicle logbook and lock the doors and turn off head lights. Place the vehicle keys in the key box and the cell phone to the charger. Click the arrival time on the vehicle reservation system.

9. Winter Driving

- 9.1. You must complete tire chain installation training to drive a vehicle on the Summit Access Road in winter.
- 9.2. Do not be overly confident with your driving skills on bad road condition. Decisions to put tire chains or to cancel a trip to the summit should be made in a timely manner so you won't be obligated not to do so.
- 9.3. Avoid driving alone. Driving alone could cause drowsiness and could delay of notification in case of an accident. For night operations, operators, support astronomers and observers should coordinate and have at least one passenger in each vehicle.
- 9.4. Night crew (operators and support astronomers) should use at least two vehicles to trip to the summit facility. This is for a fail-safe.
- 9.5. 9.3 and 9.4 may conflict each other if the total number of night crew and visitors are less than four. In such a case, use two vehicles. And use a buddy system of vehicles to ensure safety. With a buddy system, a driver of one vehicle can watch for another vehicle.
- 9.6. Exception is permissible as long as driver and passenger safety is assured and an operator approves it. The operator is in charge of safety for night operation. Here is an example how a lone driver can assure his/her safety. Before a lone driver leaves the summit, tell a night crew who stay at the summit or at HP that you will call him/her when the driver arrives at HP. If the driver doesn't call the night crew within reasonable time to travel to HP (say, 30 minutes or so), the crew will start a search mission.
- 9.7. Drivers must put tire chains if studded tires are not installed and
 - 9.7.1. If at any point during the day or night, the humidity at the summit (VLBA or higher in elevation) was greater than 90% while the summit temperature (VLBA or higher) was less than -1 deg. C.
 - 9.7.2. or If the ranger recommends tire chains.
- 9.8. When you come down from the Summit before sunrise with snow and ice on the paved road, snow chains are required. If there is a strong chance of snow and ice at the Summit, it is wise to

install the snow chains at Halepohaku before driving up to the Summit. If needed, a larger floor jack can be borrowed from the MKSS shop.

- 9.9. If you receive a report from somebody (Ranger, Subaru or other observatory staff, etc.) that the road is dry, then there is no need to put on chains unless the temperature and humidity exceeds the above thresholds afterwards.
- 9.10. To increase traction, drivers may install tire chains on studded tires for additional safety.
- 9.11. Consult with the vehicle owner's manual regarding on which wheels tire chains should be worn.
- 9.12. Driver of each vehicle is responsible for the decision of installation of tire chains if studded tires are not installed. All vehicles in convoy should install tire chains if studded tires are not installed and if any one of drivers decides to do so.
- 9.13. A spray cans that would increase the traction of tires against ice called as Tyre-grip are stored in flammable cabinets located on the first floor of the control building and against the wall of machine/vehicle shop of Halepohaku. Do not be overconfident of the performance of the spray. If you are not sure about the performance, use tire chains instead. Do not leave spray cans in the vehicle during the daytime. Spray cans may explode with excess heat.
- 9.14. During the winter season (normally September to March), we assign two vehicles for night crew. The assigned vehicles will stay at Halepohaku without returning to Hilo until the next regular vehicle maintenance and will have studded tires installed all the time while they are in use. Night crew travels between Hilo and Halepohaku with a car with regular tires.
- 9.15. While two vehicles have studded tires on, two cars will be rent for travel of drivers of those vehicles between Hilo and Halepohaku. The cars are for this purpose only and only limited drivers are covered with insurance. Check with the accounting unit if the insurance covers you before driving the car.

10. Transportation of load

- 10.1. The driver is responsible for secure transportation of load on a vehicle, unless the driver is explicitly prohibited to enter and watch loading and securing the load. The driver is responsible for safe handling and security of the load until someone else takes over driving, until someone else starts unloading, or until someone else takes over handling and security of the load. If the driver leaves the vehicle with load that he/she drove, the driver still bears the responsibility for safe keeping and for security of the load until one of the above conditions is met.
- 10.2. Unless prohibited explicitly, the driver must know what's inside the vehicle or the truck. If the load is hazardous material, the driver must be able to find information on the material from Emergency Response Guidebook that is stored in each vehicle.
- 10.3. Transporting large quantity of hazardous material so that posting a placard is required by Department of Transportation is prohibited.
- 10.4. Large amount of compressed gas and cryogen in a vessel or a cylinder with a pressure-release valve must be transported with a truck and must be loaded on a truck bed. Storing them in the passenger compartment will cause oxygen deficiency and is prohibited.
- 10.5. Transporting hazardous waste is prohibited unless someone takes responsibility for all requirements such as documenting manifest related to the transportation. We will call a

professional disposing company for collection of hazardous waste. Contact the accounting unit or the Safety Officer for details.

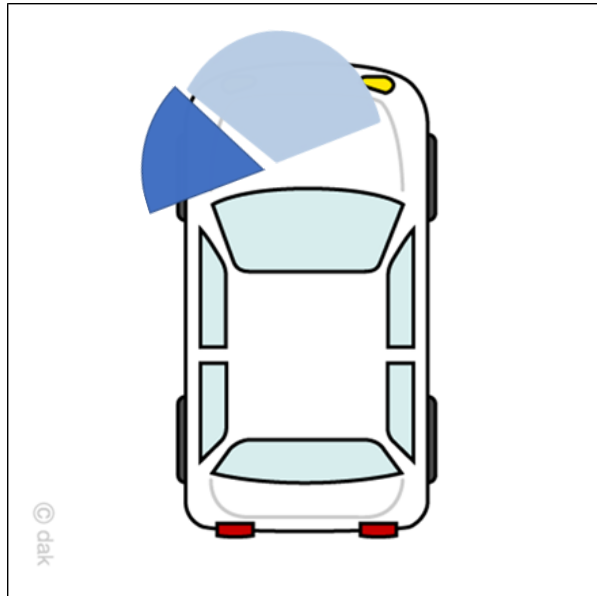
10.6. Only authorized driver taking special training allows operating J-8.

11. Drive Recorder

11.1. Drive recorders are installed to all the vehicles. The purpose of drive recorders is to record activities of people close to the vehicle and to record interactions between such people and the driver/passengers. A driver recorder starts recording both video and voice as you turn an ignition key to ACC or on position. You will know that the camera is recording by green flashing LED or an indicator on the LCD screen. This drive recorder has a built-in LCD screen so that you can see the view that is recorded into a memory card. Field of view of a camera just covers the left front side windshield on the driver's and one of the other cameras covers most side windshield (See attached diagram). Please do not move the cameras, disconnect the power adapter or change the configurations. Instruction manual is located in the center of the dashboard. If you find any problem or question, please contact vehicle@naoj.org.



11.2. Neither camera covers the front view. If you determine there is a scene to be recorded ahead of you, you may move a camera position. But once the scene is done, please return the camera to the original position.



11.3. Please note that this drive recorder records your voice. Advise passengers that the drive recorder records voice. Video and audio data recorded on the card may be retrieved for investigations only if necessary. In most cases, data on the card will be automatically deleted if the card becomes full, to make a room for new data.

ACKNOWLEDGEMENT OF SUBARU TELESCOPE SAFETY DRIVER TRAINING

I understand the instructions of my instructor and have read and understood the information on safe driving guidelines. I also understand the rules and regulations of Hawaii State traffic laws and the vehicle rules and regulations of the Subaru Telescope Vehicle Policy.

Used guidelines were the version of 01/11/2023.

Trainee Print Name _____

Signature _____ Date _____

Instructor Print Name _____

Signature _____ Date _____