

2025

Owner's Manual

DELTA

ELECTRIC DIRT BIKE

ALTIS E-POWERSPORTS

This manual should be considered a permanent part of the motorcycle and should remain with the motorcycle when it is resold.

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Altis Powersports INC.

**2025
ALTIS Delta
OWNER'S MANUAL**



It does not conform to FMVSS or US On Highway regulations, operation on public streets, roads, or highways is illegal. Obey local laws and regulations. It conforms to US EPA, California, and Environment and Climate Change Canada (ECCC) emission regulations for off-road motorcycles.

This vehicle is designed and manufactured for off-road use only.
USA only:

Meets and or exceeds Department Of Energy (DOE) and California Electronic Commission (CEC) battery and charger regulations.

SAFETY INFORMATION

Your safety, and the safety of others, is very important. And operating this motorcycle safely is an important responsibility the owner (operator) must understand.

To help you make informed decisions about safety, inside this manual you have been provided operating procedures and other information on labels. This information alerts you to potential hazards that could hurt you or others.

Of course, it is not possible to warn you about all hazards associated with operating or maintaining a motorcycle. You must use your good judgment when operating this motorcycle.

You will find important safety information in a variety of forms, including:

Safety Labels – on the motorcycle.

Safety Messages – preceded by an alert symbol and one of three signal words:

DANGER, WARNING, or CAUTION.

SAFETY INFORMATION

These signal words mean:



You **WILL** be **KILLED** or **SERIOUSLY HURT** if you don't follow instructions.



You **CAN** be **KILLED** or **SERIOUSLY HURT** if you don't follow instructions.



You **CAN** be **HURT** if you don't follow instructions.

Safety Headings – Important Safety Reminders or Important Safety Precautions.

Safety Section – Motorcycle Safety.

Instructions – How to use this motorcycle correctly and safely.

This entire book is filled with important safety information – please read it carefully.

INTRODUCTION

Congratulations on choosing your Altis electric off-road motorcycle.

When you own a Altis vehicle, you're part of a family of satisfied customers who appreciate quality electric motorcycles.

Your Altis was designed as a recreational motorcycle for off-road use by one rider only. It's an ideal bike for younger, beginning riders.

Before riding, take time to get acquainted with your motorcycle and how it works.

Whenever you ride, tread lightly. By staying on established trails and riding only in approved areas, you help protect the environment and keep off-road riding areas open for the future.

To protect your investment, we urge you to take responsibility for keeping your motorcycle well-maintained. Scheduled service is a must, all the periodic checks detailed in this manual.

INTRODUCTION

We also recommend that you read the owner's manual before you ride, it is full of facts, instructions, safety information, and helpful tips.

If you have any questions, or if you ever need service or repairs, remember that your Altis dealer knows your motor cycle best and is dedicated to your complete satisfaction.

Please report any change of address or ownership to your dealer so Altis will be able to contact the owner concerning important product information.

This Owner's Manual serves as a technical instruction manual, explains important safety matters, and provides an overview of the main functions of the vehicle.

This Owner's Manual is only intended for personal use and is not intended for commercial use.

CONTENTS

| | | |
|-----|------------------------------------|----|
| 1 | SYMBOL DEFINITIONS..... | 1 |
| 1.1 | Symbols used..... | 1 |
| 2 | SAFETY ADVICE..... | 3 |
| 2.1 | Intended use..... | 3 |
| 2.2 | Misuse..... | 3 |
| 2.3 | Note/warning..... | 4 |
| 2.4 | Grades of risks..... | 4 |
| 2.5 | Tampering warning..... | 5 |
| 2.6 | Important Safety Information | 6 |
| 2.7 | Important message to parents..... | 11 |
| 2.8 | Fall or accident..... | 15 |

CONTENTS

| | | |
|------|--|----|
| 2.9 | Protective apparel..... | 15 |
| 2.10 | Work on vehicle, motor, and rechargeable lithium battery..... | 17 |
| 2.11 | Environment..... | 19 |
| 2.12 | Owner's Manual | 20 |
| 2.13 | Fire hazard..... | 21 |
| 3 | IMPORTANT NOTES..... | 22 |
| 3.1 | Manufacturer warranty..... | 22 |
| 3.2 | Fuel, auxiliary substances | 22 |
| 3.3 | Loading, accessories&modifications..... | 22 |
| 3.4 | Service..... | 27 |

CONTENTS

| | | |
|-----|------------------------------------|----|
| 3.5 | Customer service..... | 28 |
| 3.6 | Power supply..... | 29 |
| 3.7 | Operation at low temperature..... | 30 |
| 4 | VEHICLE OVERVIEW..... | 31 |
| 4.1 | Vehicle overview..... | 31 |
| 5 | SERIAL NUMBER..... | 33 |
| 5.1 | Vehicle identification number..... | 33 |
| 5.2 | Vehicle nameplate..... | 33 |
| 5.3 | Battery label..... | 34 |

CONTENTS

| | | |
|-----|---------------------------------------|----|
| 5.4 | Motor number..... | 34 |
| 6 | CONTROLS..... | 35 |
| 6.1 | Front brake lever..... | 35 |
| 6.2 | Throttle grip..... | 35 |
| 6.3 | Rear brake pedal..... | 36 |
| 6.4 | Ignition lock..... | 36 |
| 6.5 | Start button..... | 37 |
| 7 | COMBINATION INSTRUMENT..... | 38 |
| 7.1 | Combination instrument overviews..... | 38 |
| 7.2 | Function display..... | 39 |

CONTENTS

| | | |
|------|----------------------------------|----|
| 7.3 | Boot screen..... | 39 |
| 7.4 | Specification parameter..... | 40 |
| 7.5 | Interface display..... | 41 |
| 7.6 | Drive mode selection..... | 42 |
| 7.7 | Fault code display..... | 42 |
| 7.8 | Reset single mileage..... | 43 |
| 7.9 | Enter password | 44 |
| 7.10 | Setting kilometers or miles..... | 45 |
| 7.11 | Power display..... | 46 |
| 7.12 | Fault code definition..... | 47 |

CONTENTS

| | | |
|-----|---|----|
| 8 | PREPARING FOR USE..... | 51 |
| 8.1 | Advice on preparing for first use..... | 51 |
| 9 | RIDING INSTRUCTIONS..... | 55 |
| 9.1 | Check and maintenance measures when preparing for use..... | 55 |
| 9.2 | Starting the vehicle..... | 57 |
| 9.3 | Starting off..... | 59 |
| 9.4 | Braking..... | 59 |
| 9.5 | Wading..... | 62 |
| 9.6 | Stop, park..... | 64 |
| 9.7 | Deactivating the vehicle..... | 66 |
| | Transporting..... | 66 |

CONTENTS

| | | |
|------|--|----|
| 10 | SERVICE SCHEDULE..... | 68 |
| 10.1 | Additional information..... | 68 |
| 10.2 | Required work..... | 68 |
| 10.3 | Recommended work..... | 73 |
| 11 | SUSPENSION SETTING..... | 74 |
| 11.1 | Checking the basic chassis setting with the rider's weight..... | 74 |
| 11.2 | Rear shock absorber..... | 75 |
| 11.3 | Adjusting the rebound damping of the shock absorber..... | 75 |
| 11.4 | Measuring the rear wheel dimension unloaded..... | 76 |

CONTENTS

| | | |
|------|--|----|
| 11.5 | Checking the static sag of the rear shock absorber..... | 77 |
| 11.6 | Check the riding sag of the rear shock absorber..... | 78 |
| 11.7 | Adjusting the spring preload of the rear shock absorber..... | 79 |
| 11.8 | Handlebar position..... | 82 |
| 11.9 | Adjusting the handlebar position..... | 82 |
| 12 | SERVICE WORK ON THE CHASSIS..... | 84 |
| 12.1 | Raising the motorcycle with a lift stand..... | 84 |

CONTENTS

| | | |
|------|--|----|
| 12.2 | Removing the motorcycle from the lift stand..... | 85 |
| 12.3 | Removing the front shock absorber..... | 86 |
| 12.4 | Installing the front shock absorber..... | 87 |
| 12.5 | Removing the lower triple clamp..... | 88 |
| 12.6 | Installing the lower triple clamp..... | 90 |
| 12.7 | Checking the steering head bearing play..... | 93 |
| 12.8 | Adjusting the steering head bearing play..... | 95 |
| 12.9 | Lubricating the steering head bearing..... | 97 |

CONTENTS

| | | |
|-------|---|-----|
| 12.10 | Removing the front cover..... | 97 |
| 12.11 | Installing the front cover..... | 98 |
| 12.12 | Removing front fender..... | 98 |
| 12.13 | Installing front fender..... | 99 |
| 12.14 | Removing the rear shock absorber..... | 99 |
| 12.15 | Installing the rear shock absorber..... | 100 |
| 12.16 | Removing the seat..... | 101 |
| 12.17 | Installing the seat..... | 102 |
| 12.18 | Checking the chain for dirt..... | 102 |
| 12.19 | Cleaning the chain..... | 103 |

CONTENTS

| | | |
|--------|--|-----|
| 12.20 | Checking the chain tension..... | 105 |
| 12.21 | Adjusting the chain tension..... | 108 |
| 12.22 | Checking the chain, rear sprocket, motor sprocket, and chain guide..... | 111 |
| 12. 23 | Checking the frame..... | 115 |
| 12. 24 | Checking the rear swingarm..... | 116 |
| 12. 25 | Checking the rubber grip..... | 117 |
| 13 | BRAKE SYSTEM..... | 119 |
| 13.1 | Adjusting position of front brake lever..... | 119 |
| 13.2 | Checking the brake discs..... | 120 |
| 13.3 | Checking the front brake fluid level..... | 122 |

CONTENTS

| | | |
|-------|---|-----|
| 13.4 | Adding the front brake fluid..... | 124 |
| 13.5 | Checking the rear brake fluid level..... | 128 |
| 13.6 | Adding the rear brake fluid..... | 130 |
| 13.7 | Checking the free travel of the foot brake lever..... | 134 |
| 13.8 | Adjusting the free travel of the foot brake lever..... | 135 |
| 13.9 | Checking the front brake pads..... | 136 |
| 13.10 | Changing the front brake pads | 137 |
| 13.11 | Checking the rear brake pads..... | 140 |
| 13.12 | Changing the rear brake pads..... | 140 |
| 14 | WHEELS,TIRES..... | 147 |

CONTENTS

| | | |
|------|---------------------------------------|-----|
| 14.1 | Removing the front wheel..... | 147 |
| 14.2 | Installing the front wheel..... | 148 |
| 14.3 | Removing the rear wheel..... | 150 |
| 14.4 | Installing the rear wheel..... | 153 |
| 14.5 | Checking the tire condition..... | 156 |
| 14.6 | Checking the tire pressure..... | 158 |
| 14.7 | Checking spoke tension..... | 159 |
| 15 | MOTOR, BATTERY, BATTERY CHARGER..... | 161 |
| 15.1 | Overview of motor..... | 161 |
| 15.2 | Change gearbox oil..... | 161 |
| 15.3 | Overview of the battery..... | 162 |
| 15.4 | Removing the lithium-ion battery..... | 162 |

CONTENTS

| | | |
|------|--|-----|
| 15.5 | Installing the lithium-ion battery..... | 164 |
| 15.6 | Overview of battery charger..... | 166 |
| 15.7 | Positioning the battery charger..... | 166 |
| 15.8 | Charging the battery..... | 171 |
| 15.9 | Check motor cable, power cable installation screws..... | 178 |
| 16 | COOLING..... | 179 |
| 16.1 | Cooling..... | 179 |
| 17 | CLEANING, CARE..... | 180 |
| 17.1 | Cleaning the motorcycle..... | 180 |
| 18 | STORAGE..... | 184 |
| 18.1 | Storage..... | 184 |
| 18.2 | Preparing for use after storage..... | 187 |

1.1 Symbols used

The meaning of specific symbols is defined below.

✓ Indicates an expected reaction(e.g., of a work step or a function).

✗ Indicates an unexpected reaction(e.g., of a work step or a function).

🔧 All work marked with this symbol requires special knowledge and technical understanding. In the interest of safety, have these performed by an authorized Altis dealer.

Your motorcycle will be optimally cared for there by specially trained experts using the special tools required.

i Indicates information with more details or tips.

SYMBOL DEFINITIONS 1

- » Indicates the result of a testing step.
- ◀ Indicates the end of an activity, including potential reworking.
- V Indicates a voltage measurement.
- A Indicates a current measurement.

2.1 Intended use

This vehicle is designed and constructed to withstand the stresses and strains of regular riding if the maximum rider weight is not exceeded.

i info

Only operate this vehicle in closed-off areas away from public road traffic.

Only use lithium-ion battery while it is inside the vehicle.

2.2 Misuse

The vehicle must only be used as intended.

Dangers can arise for people, property and the environment if the product is misused.

Misuse also includes the use of operating and auxiliary fluids which do not meet the required specification for the respective use.

SAFETY ADVICE 2

2.3 Notes / warning

Pay close attention to notes/warnings.

- i info** Various information and warning labels are affixed to the vehicle. Do not remove information / warning labels. If they are missing, you or others may not recognize dangers and may therefore be injured.
-

2.4 Grades of risks

- ⚠ Danger** Identifies a danger that will immediately and invariably lead to fatal or serious permanent injury if the appropriate measures are not taken.



Warning

Identifies a danger that will immediately and invariably lead to fatal or serious injury if the appropriate measures are not taken.



Caution

Identifies a danger that may lead to minor injuries if the appropriate measures are not taken.



Warning

Identifies a danger that will lead to environmental damage if the appropriate measures are not taken.

2.5 Tampering warning

Modifying the vehicle is prohibited, otherwise safe operation can not be guaranteed and warranty will be void.

SAFETY ADVICE 2

Examples of inadmissible manipulation and modifications:

1. Opening the rechargeable lithium-ion battery.
2. Using the vehicle or the rechargeable lithium-ion battery when proper maintenance has not been performed.
3. Using the vehicle or the rechargeable lithium-ion battery outside of its defined use.
4. Using a damaged lithium-ion battery.

2.6 Important Safety Information

Your motorcycle can provide years of service if you take responsibility for your own safety and understand the challenges you can meet while riding.

There is much that you can do to protect yourself when you ride. You'll find many helpful recommendations throughout this manual. The following are a few that we consider most important.

Always Wear a Helmet:

It's a proven fact: helmets significantly reduce the severity of a head injury. Always wear a DOT approved motorcycle helmet. We also recommend eye protection, sturdy boots, gloves, and other protective gear.

Never Carry a Passenger:

Your motorcycle is designed for one rider only. There are no handles, footrests, or seat for a passenger. A passenger will interfere with your ability to move around to maintain your balance and control of the motorcycle.

Ride Off-Road Only:

Your motorcycle is designed and manufactured for off-road use only. The tires are not made for pavement, the motorcycle does not have turn signals and other features mandated for use on public roads. If you need to cross a paved or public road, get off and walk your motorcycle across the road.

SAFETY ADVICE 2

Don't Drink and Ride:

Alcohol and other mind altering substances do not mix well with riding. Even one drink or other drug can reduce your ability to respond to changing conditions, your reaction time will continue to get worse with every additional drink or drug. Do not drink and use any mind altering substance while riding, and do not let your friends ride under the influence either.

Take Time to Learn and Practice:

Developing off-road riding skills is a gradual, step-by-step process. Start by practicing at low speeds in a safe area and slowly build your skills. Personal instruction from an experienced rider can also be valuable. If you need assistance, ask your dealer about riding schools in your area.

Be Alert for Off-Road Hazards:

The terrain can present a variety of challenges when you ride off-road. Continually “read” the terrain for unexpected turns, drop-offs, rocks, ruts, and other hazards. Always keep your speed low enough to allow time to see and react to hazards.

Ride within Your Limits:

Pushing limits is another major cause of motorcycle accidents. Never ride beyond your personal abilities or faster than conditions warrant. Remember that alcohol, drugs, fatigue, and inattention can significantly reduce your ability to make good judgments and ride safely.

Keep Your Delta in Safe Condition

It's important to keep your motorcycle properly maintained and in safe riding condition. Having a breakdown can be difficult, especially if you are stranded off-road far from your base. To help avoid problems, inspect your motorcycle before every ride and perform all recommended maintenance.

SAFETY ADVICE 2



Warning

Danger of burns Some vehicle components become very hot when the vehicle is operated.

- Do not touch any parts such as the motor, lithium-ion battery, damper, or brake system before these vehicle parts have cooled down.
- Let the vehicle parts cool down before you perform any work on the vehicle.

This vehicle is a high-voltage(72v) electric motorcycle. For this reason, follow the safety and care instructions that apply when using an electric motor.

As with a conventional drive with a combustion engine, the operating temperature rises according to use and depending on the ambient temperature and the cleanliness of the cooling surfaces. If the temperature of the motor, the lithium-ion battery, or the electronics rises above the permissible operating temperature, the power of the vehicle will be reduced considerably. This protects the system against damage from overheating.

Because this vehicle does not have a manual transmission, there is no clutch.

Only operate the vehicle when it is in proper technical condition, in accordance with its intended use, and in a safe and environmentally compatible manner.

Adhere to the information and warning labels on the vehicle.

2.7 Important message to parents

Your younger's safety is very important to Altis. That's why we urge you to read this message before you let any young person ride this motorcycle. Off-road riding can be fun. But, as with riding a bicycle, bad judgment can result in injury, and we don't want that to happen! as a parent, you can help prevent accidents by making good decisions about if, when, and how your youngster rides this motorcycle.

Riding Readiness:

The first decision you'll need to make is whether your youngster is ready to ride. Riding readiness varies widely from one person to another, and age and size are not the only factor.

PHYSICAL ABILITY is an important consideration. For example, riders must be big enough to hold the motorcycle up, get on, and comfortably sit on the seat with both feet touching the ground.

They should also be able to easily reach and work the brakes, throttle, and all other controls.

ATHLETIC ABILITY is necessary to ride a motorcycle. Generally speaking, your youngster should be good at riding a bicycle before getting on a motorcycle. Can your youngster judge speeds and distances while riding a bicycle and react with proper hand and foot coordination? Anyone who does not have good coordination, balance, and agility is not ready to ride this motorcycle.

MENTAL AND EMOTIONAL MATURITY are requirements for safe riding. Does your youngster think through problems and come to logical solutions? On a bicycle, does your youngster obey safe riding rules? Be honest! Young people who take unnecessary risks, make bad judgments, and don't obey rules are not ready to ride this motorcycle.

Instruction and Supervision:

If you decide that your youngster is ready to safely operate a motorcycle, make sure both of you carefully read and understand the owner's manual before riding. Also, be sure that your youngster has a helmet and other appropriate riding equipment, and always wears it when operating the motorcycle or sitting on it.

GOOD INSTRUCTION is an important part of hands-on training. The teacher can either be you or another responsible adult who has experience with off-road motorcycle riding.

SAFETY ADVICE 2

(For help in finding a qualified instructor, talk with your dealer.) Even if you're not the main teacher, it's up to you to ensure your youngster's safety. Remember, learning to ride a motorcycle is a gradual, step-by-step process. It takes time, patience, and practice—many hours over a period of weeks or months.

SUPERVISION is another important obligation of parents. Even after youngsters have become skilled off-road riders, they should always ride with adult supervision. It helps to regularly remind young riders of basic safety rules and precautions. And remember, it's your responsibility to see that the motorcycle is properly maintained and kept in safe operating condition.

SAFE AND RESPONSIBLE RIDING must be an ongoing commitment – by you and your youngster. When you both put safety first, you can enjoy more peace of mind, and your youngster can enjoy more hours of safe off-road riding.

For your convenience, this motorcycle comes with a safety switch and key. Remove the key when the motorcycle is parked to help prevent unauthorized use.

2.8 Fall or crash

After a fall or crash, evaluate the condition of your vehicle before you attempting to ride. Call medical personnel if needed.

2.9 Protective apparel

For your safety, we strongly recommend that you always wear an approved motorcycle helmet, eye protection, boots, gloves, long pants, and a long-sleeved jersey, shirt, or jacket whenever you ride.

Although complete protection is not possible, wearing the proper gear can reduce the chance of injury when you ride.



Warning

Risk of injury or death – Not wearing a helmet increases the chance of serious injury or death in a crash.

– Be sure you always wear a helmet, eye protection and other protective apparel when you ride.

Helmets and Eye Protection:

Your helmet is your most important piece of riding gear because it offers the best protection against head injuries. A helmet should fit your head comfortably and have a chin strap that can be tightened securely.

An open-face helmet offers some protection, but a full-face DOT helmet offers more protection. Always wear a face shield or goggles to protect your eyes and help your vision.

Additional Riding Gear:

In addition to a helmet and eye protection, we also recommend:

- Proper off-road motorcycle boots to help protect your feet, ankles, and lower legs.
- Off-road motorcycle gloves to help protect your hands.
- Riding pants with knee and hip pads, a riding jersey with padded elbows, and a chest/shoulder protector.

2.10 Work on vehicle, motor, and rechargeable lithium battery



Warning

Risk of injury There is a risk of electric shock when working on high-voltage components.

Work on high-voltage components requires special training, qualifications, and tools.

- Have all work that is not described and explained performed by trained mechanics only.

SAFETY ADVICE 2

- Do not open the electric motor or the lithium-ion battery.



Warning

Risk of injury The vehicle runs very quietly, even when it is ready to operate.

The vehicle could start moving in an uncontrolled manner if the throttle is accidentally engaged while work is being performed on the vehicle and the ignition is left on.

- Ensure the vehicle is switched to off with the key and remains switched off before starting any work on the vehicle.
- Remove the lithium-ion battery from the vehicle before you start any work on the vehicle.
- Protect the vehicle against access by unauthorized persons while you are performing work on the vehicle.

2.11 Environment

When you respect the rights of others and use your motorcycle legally, you will help to protect the future of motorcycling and avoid most conflicts and or problems.

When disposing of used oil, other operating and auxiliary fluids, and used components, comply with applicable laws and regulations in your country.

When disposing of lithium-ion batteries, observe the relevant laws and guidelines of your country and state.

Your Altis dealer can dispose of lithium-ion batteries free of charge and in an environmentally compatible manner.

Electrical devices like the battery charger may not be disposed of with household waste. Electrical devices must be disposed of through the appropriate recycling centers. Contact your municipality or your Altis dealer.

2.12 Owner's manual

Before you ride your motorcycle for the first time, we strongly recommend that you:

- Read this owner's manual fully.
- Ensure you understand all the safety messages and warnings.
- know how to operate all the controls.

The Owner's Manual contains useful information and many tips how to operate, handle, and service your motorcycle. This is the only way for you to find out how to ideally tune the vehicle and how to help protect you from injury.

Keep the Owner's Manual in an accessible place to enable you to refer to it as needed.

If you would like to know more about the vehicle or have questions on the material you read, please contact your Altis dealer.

The Owner's Manual is an important component of the vehicle and must be handed over to the new owner if the vehicle is sold.

2.13 Fire hazard



Warning

Fire hazard Damaged rechargeable lithium-ion batteries present a fire hazard.

Mechanical damage may cause an internal cell short circuit and as a consequence may cause the battery to self-ignite and or combust.

– Contact your Altis dealer immediately if major damage to the rechargeable lithium-ion battery has occurred.

There is no particular fire hazard for this vehicle when the rechargeable lithium battery is intact.

However, should the vehicle catch fire, call 911 immediately and inform them that an electric vehicle with a rechargeable lithium battery is on fire.

IMPORTANT NOTES 3

3.1 Manufacturer warranty

Parts found to be defective during the motorcycle's stated warranty period according to limitations of this warranty policy will be repaired or replaced free of charge. Proof of purchase required for warranty claim.

Modification, alteration, and installation of parts that are not genuine Altis parts are not covered by the manufacturer warranty.

3.2 Fuel, auxiliary substances

Use the operating and auxiliary substances (such as oils and lubricants) specified in the Owner's Manual.

3.3 Loading, accessories & modifications

Your motorcycle was designed as a rider-only motorcycle. It was not designed to carry a passenger or cargo. A passenger or cargo will interfere with your ability to move around to maintain your balance and control of the motorcycle.

In addition, exceeding the weight limits or carrying an unbalanced load can seriously affect your motorcycle's handling, braking, and stability. Adding accessories or making modifications that change this motorcycle's design and performance can also make it unsafe. Also, the weight of any accessories will reduce the maximum load the motorcycle can carry. More specific information on load limits, accessories, and modifications follows.

Loading

How much weight you put on your motorcycle, and how you load it, are important to your safety. If you decide to carry cargo, you should be aware of the following information.



Warning

Overloading or carrying a passenger can cause a crash and you can be seriously hurt or killed. Follow all load limits and other loading guidelines in this manual.

IMPORTANT NOTES 3

Follow all load limits and other loading guidelines in this manual.

Lading limits:

Following are the load limits for your motorcycle:

Maximum weight capacity:

= 165lb (75kg)

Includes the weight of the rider and any accessories.

Loading Guidelines:

We recommend that you do not carry any cargo on this motorcycle. However, if you decide to carry cargo, ride at reduced speeds and follow these common sense guidelines:

- Keep cargo small and light. Make sure it can not easily be caught on other objects, and that it does not interfere with your ability to shift position to maintain balance and stability.

- Place weight as close to the center of the motorcycle as possible.
- Do not attach large or heavy items (such as a sleeping bag or tent) to the handlebar, fork, or front fender.
- Make sure that all cargo is tied down securely.
- Never exceed the maximum weight limit.
- Check that both tires are inflated properly.

Accessories & modifications

Modifying your motorcycle or using non Altis accessories can make your motorcycle unsafe.

Before you consider making any modifications or adding an accessory, be sure to read the following information.



Warning

Improper accessories or modifications can cause a crash in which you can be seriously hurt or killed.

Follow all instructions in this owner's manual regarding modifications and accessories.

Accessories:

We strongly recommend that you use only Altis accessories, you must be personally responsible for proper selection, installation, and use of non Altis accessories. Check with your dealer for assistance and always follow the below guideline:

Make sure the accessory does not reduce ground clearance and lean angle, limit suspension travel or steering travel, alter your riding position, or interfere with operating any controls.

Modifications:

We strongly advise you not to remove any original equipment or modify your motorcycle in any way that would change its design or operation. Such changes could seriously impair your motorcycle's handling, stability, and braking, making it unsafe to ride.

We also advise you not to make any modifications or remove any equipment that would make the motorcycle illegal in your area.

3.4 Service

A prerequisite for perfect operation and prevention of premature wear is that the service, care, and tuning work is properly carried out as described in Owner's Manual.

An incorrect suspension setting can lead to damage and or breakage of chassis components.

IMPORTANT NOTES 3

Use of the vehicle under difficult conditions, such as on sand or on wet and muddy surfaces, can result in significantly increased wear of components, such as the drive train, brake system, or suspension components.

For this reason, it may be necessary to inspect or replace parts before the next scheduled service.

It is imperative that you adhere to the stipulated service intervals. If you observe these exactly, you will ensure a much longer service life for your motorcycle.

3.5 Customer service

Your authorized Altis dealer will be happy to answer any questions you may have on your vehicle and Altis.

3.6 Power supply



A rechargeable lithium ion battery **1** is installed in the vehicle.

The lithium-ion battery supplies electric motor **2** with voltage.

The lithium-ion battery is put into frame and fixed. It can be moved in a few easy steps.

The lithium-ion battery can be charged while it is installed in the vehicle or outside the vehicle.

3.7 Operation at low temperatures

In order to protect the lithium-ion battery, the motor control reduces the power at low temperatures.

When the temperature of lithium-ion battery drops to -15° , the motor control unit reduces the power. drops to -20° , the motor control unit shutdown power.

When the temperature of lithium-ion battery rises to 63° , the motor control unit reduces the power. rises to 70° , the motor control unit shutdown power.

4 VEHICLE OVERVIEW

4.1 Vehicle overview



1. Number plate
2. Front fender
3. Former left - wing
4. Seat
5. Controller cover
6. Motor guard plate
7. Motor bracket
8. Rider footrest
9. Kickstand
10. Chain
11. Chain cable fairlead
12. Chain guard
13. Left rear wing
14. Rear fender
15. front wheel
16. Rear wheel
17. Front disc brake pad
18. Chain wheel

VEHICLE OVERVIEW 4



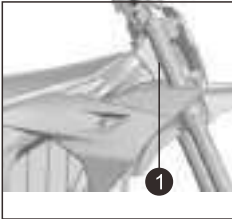
1. Left hand grip
2. Left rear brake
3. Instruments panel
4. Shirt pad
5. Right front brake
6. Switch
7. Right hand grip
8. Handlebar
9. Key

1. Holder block
2. Right rear wing
3. Rear shock absorber splash guard
4. Rear brake disc
5. Rear shock absorber
6. Rear brake lever
7. Battery
8. Motor
9. Controller
10. Front shock absorber
11. The former right-wing



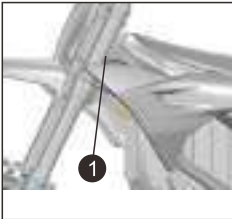
5 SERIAL NUMBER

5.1 Vehicle identification number



The vehicle identification number ① is stamped on the right side of the steering head.

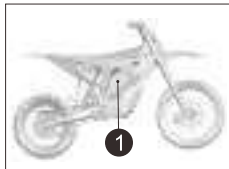
5.2 Vehicle nameplate



The vehicle nameplate ① is located on the right side of the aluminum frame.

SERIAL NUMBER 5

5.3 Battery label



The battery label ① is located on the right side of the battery.

5.4 Motor number



The motor number ① is located on the rear side of the motor.

6 CONTROLS

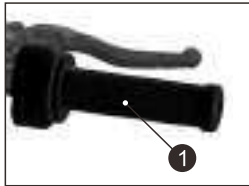
6.1 Front brake lever



Front brake lever ❶ is fitted on the right side of the handlebar.

Front hand brake lever is used to activate the front brake.

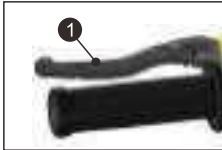
6.2 Throttle grip



The throttle grip ❶ is fitted on the right side of the handlebar. Rotation of the throttle engages the motor and the amount of rotation is related to motor power.

CONTROLS 6

6.3 Rear brake pedal



Rear brake lever ① is fitted on the right side of the handlebar. Rear hand brake lever is used to activate the rear brake.

6.4 Ignition lock

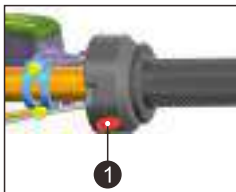


The Ignition lock ① is located on front of the handlebar.

Possible states:

- ⊗ Ignition off - In this position, the electric circuit of the battery is interrupted and the vehicle can not be activated.
- Ignition on - In this position, the electric circuit of the battery is closed and the vehicle can be started.

6.5 Start button



Start button ① is fitted on the right side of the handlebar.

Start button is only enabled when ignition lock is switched on.

When the start button is pressed, the vehicle switches from standby to riding mode.




i Info




The start button switches the vehicle from standby mode to riding mode.

If the vehicle is not moved more than 10 seconds, the vehicle automatically switches back to standby mode.

7.1 Combination instrument overview



There are three function keys on the instrument. On/Off key  in the front, Plus key  in the back, left side. Minus key  in the back, right side.

- Press the button  to control the on/off.
- Press the button  to control the different functions.
- Press the button  to control the different functions.

Info

- Turning on ignition lock, the instrument is activated.
- Turning off ignition lock, the instrument is closed.

7.2 Function display



7.3 Boot screen

After confirming that the car is powered on, press and hold the instrument panel power button (2 seconds) to start the screen.

COMBINATION INSTRUMENT 7

7.4 Specification parameter

| | |
|--------------------------|---------------|
| Rated voltage | 72V |
| Rated power | 0.8W |
| Operating voltage scope | 20V ~ 100V |
| Rated operation current | 12mA |
| Shutdown leakage current | < 1 μ A |
| Operating temperature | -4°F ~ 140°F |
| Storage temperature | -22°F ~ 158°F |

7.5 Interface display




After the instrument is activated, the instrument defaults to display real-time speed(mph) and single mileage (miles).



Repeatedly press the button **M** briefly switch between single mileage(miles), total mileage (miles), max. speed (mph), and average speed (mph).

COMBINATION INSTRUMENT 7

7.6 Drive mode selection



Press the button  for more than two seconds enter gear adjustment interface.

Press the button  /  briefly to switch among gear 1, gear 2 and gear 3 .

Press the button  briefly to save and exit.

Info

Under the normal power on state, the instrument display 1 gear by default.

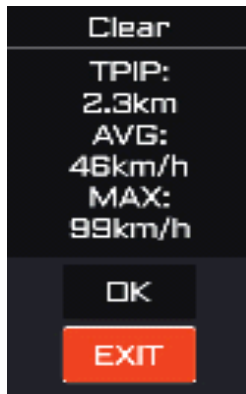
7.7 Fault code display



When the vehicle electronic control system is faulty, the instrument will automatically display the error code, the fault code is displayed in the mileage digital segment, the format is E0**.

When there is an error code on the display interface, please troubleshoot the fault in time. After the fault occurs, the electric vehicle may not run normally.

7.8 Reset single mileage



Condition

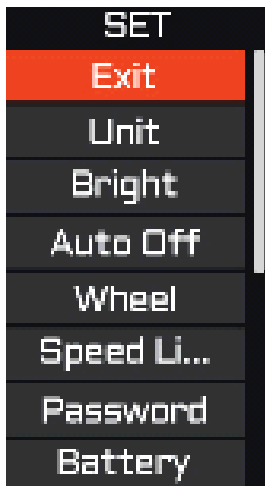
The motorcycle is stationary.

Under power on state, the instrument display is 0P.

Operation

Long press the M key to enter the settings, then select "CLEAR" to clear the small mileage (TRIP), average speed (AVG) and maximum speed (MAX).

7.9 Enter password setting



Condition

- The motorcycle is stationary.
- Under power on state, the instrument display 0P state.

Operation

Long press the M key to enter the settings interface.

7.10 Setting kilometers or miles



Condition

–The motorcycle is stationary. Operation

Operation

–Long press the M key to enter the settings interface. Select "unit" to switch between kilometers and miles.

i Info

The instrument default is mph.

7.11 Power display



- The five-segment display of battery power. When the battery is full, the five-segment lights are all on. When the battery is under-voltage, the outer frame of the battery flashes, indicating that it needs to be charged immediately.

7.12 Faults code definition

| Fault code | Definition |
|------------|--|
| E101 | Total voltage too high |
| E102 | Total voltage is too high |
| E103 | single-cell voltage too high |
| E104 | single-cell voltage too low |
| E105 | single-cell pressure difference too high |
| E106 | Charging temperature too high |
| E107 | Charging temperature too low |
| E109 | Discharging temperature too high |
| E110 | Discharging temperature too low |

COMBINATION INSTRUMENT 7

| | |
|------|---------------------------------|
| E113 | Discharging current too high |
| E114 | Charging current too high |
| E115 | Primary overdischarging |
| E116 | Cell disconnection |
| E117 | Charging MOS damage |
| E118 | Discharging MOS damage |
| E119 | Cell temperature sensor fault |
| E120 | Charging MOS overtemperature |
| E121 | Discharging MOS overtemperature |
| E122 | Protection IC error |
| E141 | Motor lack-phase |

7 COMBINATION INSTRUMENT

| | |
|------|--|
| E142 | Motor temperature signal disconnection |
| E143 | Controller overcurrent |
| E144 | Controller overtemperature |
| E145 | Instrument communication fault |
| E146 | Current sensor fault |
| E147 | Speed sensor fault |
| E148 | Battery undervoltage |
| E149 | Controller overvoltage |
| E150 | Motor overtemperature |
| E151 | Throttle grip fault |
| E152 | Battery communication fault |

COMBINATION INSTRUMENT 7

| | |
|------|-------------------------------------|
| E153 | Motor blockage |
| E154 | MOS tube fault |
| E155 | Controller temperature sensor fault |
| E156 | Controller 12V power fault |

8.1 Advice on preparing for first use

Before you ride your motorcycle for the first time, we strongly recommend that you:

- Read this owner's manual fully.
- Ensure you understand all the safety messages and warnings.
- Know how to properly operate all the controls.



Warning

Danger of accidents A rider who is not fit to ride poses a danger to him or herself and others.

- Do not operate the vehicle if you are not fit to ride due to alcohol, drugs or medication.
- Do not operate the vehicle if you are physically or mentally impaired.



Warning

Risk of injury Missing or poor protective apparel presents an increased safety risk.

- Wear appropriate protective clothing such as helmet, boots, gloves as well as pants and a jacket.
- always wear protective clothing that is in good condition and meets the legal regulations.



Warning

Danger of accidents An unadapted riding style impairs the handling characteristic.

- Adapt your riding speed to the road conditions and your riding ability.



Warning

Danger of accidents The vehicle is not designed to carry passengers.

- Do not ride with a passenger.



Warning

Danger of accidents Total weight and axle loads influence the handling characteristic.

- Do not exceed the maximum permissible overall weight or the axle loads.



Note

Overloading The suspension components will become damaged or destroyed if overloaded.

- Do not exceed the maximum permissible weight of the rider.



Warning

Risk of misappropriation People who act without authorization endanger themselves and others.

- Never leave the vehicle unattended.
- Protect the vehicle against access by unauthorized persons.

i Info

When off-road, it is recommended that you are accompanied by another person on another vehicle so that you can help each other.

- Hold the handlebar firmly with both hands and keep your feet on the footrests when riding.
- Try also to ride as slowly as possible and in a standing position to get a better feel for the motorcycle.
- Do not take any off-road trips that exceed your ability and experience.
- Do not exceed the maximum permissible weight.

Guideline:

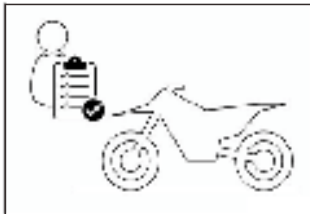
| | |
|----------------------------|--------------|
| maximum permissible weight | 75kg (165lb) |
|----------------------------|--------------|

9.1 Checks and maintenance measures when preparing for use

i Info

Before every trip, check the condition of the vehicle and ensure that it is safe to operate.

The vehicle must be in proper technical condition when it is being operated.



- Check the throttle grip, Lithium-ion battery, and electric motor for external damage.
- Check the front brake fluid level. (p.122)
- Check the rear brake fluid level. (p.128)
- Check the front brake pads. (p.136)
- Checking the rear brake pads. (p.140)

- Check that the brake system is functioning properly.
- Check the chain for dirt. (p.102)
- Check the chain, rear sprocket, motor sprocket, and chain guide. (p.111)
- Check the chain tension. (p.105)
- Check the tire condition. (p.156)
- Check tire pressure. (p.158)
- Check the spoke tension. (p.159)

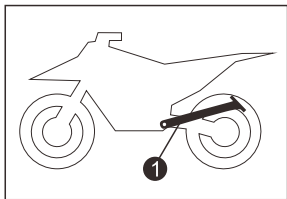
i **Info**


The spoke tension must be checked regularly as incorrect spoke tension will strongly impair riding safety.

9 RIDING INSTRUCTIONS

- Check the settings of all controls and ensure that they can be operated smoothly.
- Check the tightness of the easily accessible, safety-relevant screws and nuts.
- Check the charging level of the lithium-ion battery.

9.2 Starting the vehicle



- Raise the side stand ① .
- Turn the ignition key in the ignition lock to the position  . (p.36)

RIDING INSTRUCTIONS 9



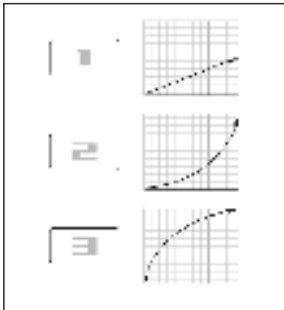
Optional:

– Select one of the driving modes. (p.42)

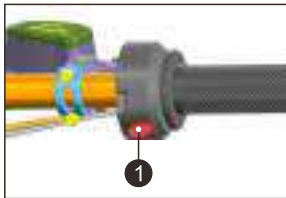
The riding mode 1 is Economy: the motor torque is reduced by half.

The riding mode 2 is Standard: the further the throttle grip is twisted open, the more the motor power increases.

The riding mode 3 is Advanced: the greatest in power occurs immediately, after which the motor power increases more slowly.



9 RIDING INSTRUCTIONS



- Press the start button ① .
- ✓ The vehicle is ready for operation and responds to the throttle grip.

9.3 Starting off



Info

The side stand must be folded up before riding.

- Open the throttle carefully.

9.4 Braking



Warning

Danger of accidents Excessively forceful application of the brakes blocks the wheels.

RIDING INSTRUCTIONS 9

– Adjust application of the brakes to the respective riding situation and riding surface conditions.



Warning

Danger of accidents A spongy pressure point on the front or rear brake reduces braking efficiency.

– Check the brake system and do not continue riding until the problem is eliminated. (your authorized Altis dealer will be glad to help.)



Warning

Danger of accidents Moisture and dirt impair the brake system. Brake carefully several times to dry out and remove dirt from the brake pads and the brake discs.



Info

The rear brake pedal is located under your right foot.

9 RIDING INSTRUCTIONS

To slow or stop, apply the front brake and rear brake pedal smoothly, Gradually increase braking as you feel the brakes slowing your speed. For support, put your left foot down first, then your right foot when you have finished using the rear brake.

For maximum braking, release the throttle and firmly apply the brake lever and pedal controls.

Applying the brakes too hard may cause the wheels to lock and slide, reducing control of your motorcycle. If this happens, release the brake controls, steer straight ahead until you regain control, then reapply the brakes more gently.

Generally, reduce your speed or complete braking before beginning a turn. Avoid braking or closing the throttle quickly while turning.

Either action may cause one or both wheels to slip. Any wheel slip will reduce your control of your motorcycle.

RIDING INSTRUCTIONS 9

When riding in wet or rainy conditions, or on loose surfaces, the ability to maneuver and stop will be reduced. Rapid acceleration, braking or turning may cause loss of control. For your safety, exercise extreme caution when braking, accelerating, or turning.

When descending a long, steep grade, pay attention to reduce the speed of vehicle, with intermittent use of both brakes.

- On sandy, wet, or slippery surface, use mostly the rear brake if possible.
- Try to complete the braking procedure before riding into curve.

9.5 Wading

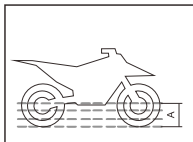
i Info

If you are riding on a rainy day, please slow down, brake slowly, judge the road conditions as soon as possible, and do not brake suddenly to avoid the wheel slipping.

9 RIDING INSTRUCTIONS

Do not wade easily when riding, and be careful not to pass through places where the water is too deep. Although the motor, battery, controller and other important parts of the motorcycle have been waterproofed, this does not mean walking in the water at will, especially don't rush into the place where water is accumulated, and drive in a detour. Don't let water flood the motor, so as not to cause the motor malfunction.

After riding, don't rush to charge the motorcycle. This may cause a short circuit. Motorcycles should be placed in a ventilated place to keep the rain dry. The key components of the battery and connection socket must be wiped dry to avoid accidents.



i Info

For the safety of your vehicle, the wading depth under normal driving is less than "A" (100mm).

9.6 Stop, park



Warning

Risk of misappropriation People who act without authorization endanger themselves and others.

- Never leave the vehicle unattended.
- Protect the vehicle against access by unauthorized persons.



Warning

Danger of burns Some vehicle components become very hot when the vehicle is operated.

- Do not touch any parts such as the motor, lithium-ion battery, damper, or brake system before these vehicle parts have cooled down.
- Let the vehicle parts cool down before you perform any work on the vehicle.

Note

Danger of damage The vehicle may be damaged by incorrect procedure when parking.

Significant damage may be caused if the vehicle rolls away or falls over.

The components for parking the vehicle are designed only for the weight of the vehicle.

- Park the vehicle on a firm and level surface.
- Ensure that nobody sits on the vehicle when the vehicle is parked on a stand.

Note

Fire hazard Hot vehicle components pose a fire hazard and explosion risk.

- Do not park the vehicle near to materials which are highly flammable or explosive.

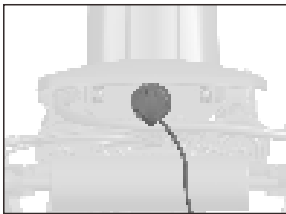
RIDING INSTRUCTIONS 9


– Allow the vehicle to cool down before covering it.

– Deactivate the vehicle. (p.80)

– Park the motorcycle on its side stand on a firm surface.

9.7 Deactivating the vehicle



– Turn the ignition key in the ignition lock to the position  while the vehicle is deactivated. Remove the ignition key.

Note

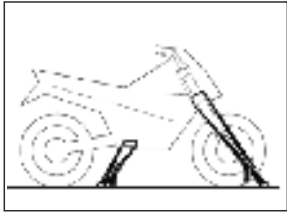
It enters the shutdown state after the battery is power off for 5 seconds.

9.8 Transporting

If you use a truck or motorcycle trailer to transport your Altis, we recommend that you follow these guidelines:

9 RIDING INSTRUCTIONS

- Use a loading ramp
- Secure the motorcycle in an upright position, using motorcycle tie-down straps. Avoid using rope, which can loosen and allow the motorcycle to fall over.



To secure your motorcycle, brace the front wheel against the front of the truck bed or trailer rail.

- Tighten both straps to keep the front of the motorcycle from moving
- Use another both tie-down strap to keep left and right of the motorcycle from moving.

We recommend that you do not transport your motorcycle on its side. This can damage the motorcycle.


SERVICE SCHEDULE 10

10.1 Additional information

For the safety for your younger riding, you need to regularly check the vehicle.

Altis dealer is pleased to help you if you have any problems in the repair work.

10.2 Required work

| | | | | | |
|---|-----------------------|----------------------------------|----------------------------------|----------------------------------|---------------------------------|
| | | | | | Every 80 operating hours |
| | | | | | Every 40 operating hours |
| | | | | | Every 20 operating hours |
| | | | | | After 10 operating hours |
| Check the battery charger plug for damage and dirt.  | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | |

One-time interval

Periodic interval

10 SERVICE SCHEDULE

| | Every 80 operating hours | | |
|---|--------------------------|---|---|
| | Every 40 operating hours | | |
| | Every 20 operating hours | | |
| | After 10 operating hours | | |
| Check electrical system is functioning properly. 🛠️ | ○ | ● | ● |
| Check and charge Lithium-ion battery. 🛠️ | ○ | ● | ● |
| Check front brake pads. (p.136) | ○ | ● | ● |
| Check rear brake pads . (p.140) | ○ | ● | ● |
| Check brake discs. (p.120) | ○ | ● | ● |
| Check brake lines for damage and leakage. | ○ | ● | ● |
| Check front brake fluid level. (p.122) | ○ | ● | ● |

○ One-time interval

● Periodic interval



SERVICE SCHEDULE 10

| | Every 80 operating hours | | |
|---------------------------------------|--------------------------|---|---|
| | Every 40 operating hours | | |
| | Every 20 operating hours | | |
| | After 10 operating hours | | |
| Check rear brake fluid level. (p.128) | ○ | ● | ● |
| Check frame. 🛠️ (p.115) | | ● | ● |
| Check rear swingarm. 🛠️ (p.116) | | ● | ● |
| Check fork bearing for play. 🛠️ | | ● | ● |
| Check tire condition. (p.156) | ○ | ● | ● |
| Check tire pressure. (p.158) | ○ | ● | ● |
| Check wheel bearing for play. 🛠️ | | ● | ● |
| Check wheel hubs. 🛠️ | | ● | ● |

○ One-time interval

● Periodic interval

10 SERVICE SCHEDULE

| | Every 80 operating hours | | |
|--|--------------------------|---|---|
| | Every 40 operating hours | | |
| | Every 20 operating hours | | |
| | After 10 operating hours | | |
| Check rim run-out.  | ○ | ● | ● |
| Check spoke tension. (p.159) | | ● | ● |
| Check chain, rear sprocket, motor sprocket, and chain guide. (p.111) | ○ | ● | ● |
| Check chain tension. (p.105) | ○ | ● | ● |
| Grease all moving parts (e.g., hand lever, chain, ...) and check for smooth operation.  | ○ | ● | ● |
| Check steering head bearing play. (p.93) | ○ | ● | ● |

○ One-time interval

● Periodic interval

SERVICE SCHEDULE 10

| | Every 80 operating hours | | | |
|---|--------------------------|---|---|---|
| | Every 40 operating hours | | | |
| | Every 20 operating hours | | | |
| | After 10 operating hours | | | |
| Check cables and wires for damage and kink-free installation. 🛠️ | ○ | ● | ● | ● |
| Service front shock absorber . 🛠️ | | | ● | ● |
| Perform rear shock absorber service. 🛠️ | | | | ● |
| Check tightness of relevant screws and nuts. | ○ | ● | | ● |
| Final check: Check the vehicle for safe operation, perform a test ride to ensure everything is correct. | ○ | ● | | |

○ One-time interval

● Periodic interval

10 SERVICE SCHEDULE

10.3 Recommended work

| | Every 40 operating hours | | |
|---|--------------------------|---|---|
| | Every 20 operating hours | | |
| | After 10 operating hours | | |
| | Every 12 months | | |
| Change front brake fluid. | ● | | |
| Change rear brake fluid. | ● | | |
| Service front shock absorber. | | ○ | |
| Perform rear shock absorber service. | | | ○ |
| Lubricate the steering head bearing. (p.97) | ● | | |

○ One-time interval

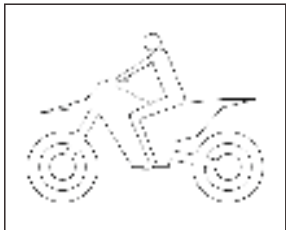
● Periodic interval

SUSPENSION SETTING 11

11.1 Checking the basic chassis setting with the rider's weight

i Info

When adjusting the basic chassis setting, first adjust the shock absorber and then the fork.



- For optimal motorcycle riding characteristics and to avoid damage to shock absorbers, fork, and frame, the basic settings of the suspension components must match the rider's weight.
- This vehicle is delivered pre-set for a maximum rider's weight (with full protective apparel).

Guideline

| | |
|----------------------|----------------|
| Maximum rider weight | 60 kg (132lbs) |
|----------------------|----------------|

11 SUSPENSION SETTING



- If the rider's weight is below Maximum rider weight, the basic setting of the suspension components must be adjusted accordingly.
- Small weight differences can be compensated by adjusting the spring preload.



11.2 Rear shock absorber

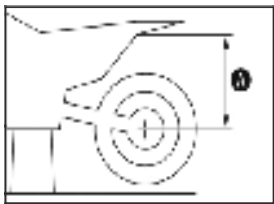
Rear shock absorber is fitted between the frame and rear fork.

11.3 Adjusting the rebound damping of the rear shock absorber



- Rotate adjusting black ❶ screw as follow:
 1. Turn clockwise to increase the damping.
 2. Turn counterclockwise to reduce the damping;
 3. When installing the rear shock absorber, hole ❷ is connected with the frame, hole ❸ is connected with the rear fork.

11.4 Measuring the rear wheel dimension unloaded



Preparatory work

- Raise the motorcycle with a lift stand.
(p.84)

Main work

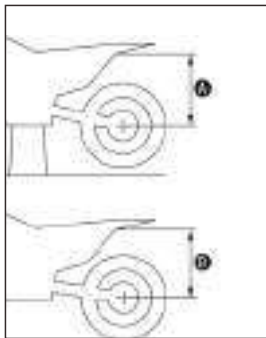
- Measure the vertical distance between the rear axle and a fixed point such as a marking on the side cover.
- Note the value as dimension A.

Finishing work

- Remove the motorcycle from the lift stand.
(p.98)



11.5 Checking the static sag of the rear shock absorber



- Measure dimension A of rear wheel unloaded. (p.76)
- Hold the motorcycle upright with aid of an assistant.
- Measure the distance between rear axle and fixed point again.
- Note the value as dimension B.

i Info

The static sag is the difference between measurements A and B.

Check the static sag.

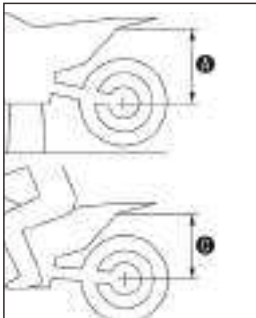
| | |
|------------|---------------|
| Static sag | 6 mm (0.23in) |
|------------|---------------|

SUSPENSION SETTING 11

» If the static sag is less or more than the specified value:

– Adjust the spring preload of the rear shock absorber. 🛠️ (p.79) ◀

11.6 Checking the riding sag of the rear shock absorber



– Measure dimension A of rear wheel unloaded. (p.76)

– With another person holding the motorcycle, the rider, wearing full protective apparel, sits on the seat in a normal sitting position (feet on footrests) and bounces up and down a few times.

✓ The rear wheel suspension levels out.

11 SUSPENSION SETTING


- Another person now measures the distance between the rear axle and the fixed point.
 - Note the value as dimension C.
-

i Info

The riding sag is the difference between measurements A and C.

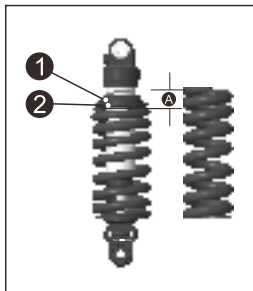
Check the riding sag.

| | |
|------------|----------------|
| Riding sag | 35 mm (1.38in) |
|------------|----------------|

- » If the riding sag differs from the specified measurement:
- Adjust the spring preload.  (p.79) ◀

11.7 Adjusting the spring preload of the rear shock absorber

SUSPENSION SETTING 11



Preparatory work

- Raise the motorcycle with a lift stand. (p.84)
- Remove the rear shock absorber. 🛠️ (p.99)
- After removing the rear shock absorber, clean it thoroughly.

Main work

- Measure the full spring length while it is under tension and note down the value.
- Loosen retaining ring ① .
- Turn adjusting ring ② until the spring is no longer under tension.

Hook Wrench tool (45-52)

- Measure the total spring length while the spring is not under tension.

- Tighten the spring to the specified measurement by turning adjusting ring ② .

Guideline:

| | |
|----------------|-------------|
| Spring preload | 5mm (0.2in) |
|----------------|-------------|

i Info

The spring preload is the difference between the relaxed spring length and the tensioned spring length.

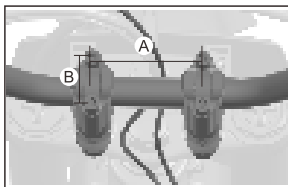
Depending on the static sag and/or the riding sag, it may be necessary to increase or decrease the spring preload.

Finishing work

- Install the shock absorber. 🛠️ (p.100)
- Remove the motorcycle from the lift stand. (p.85)

SUSPENSION SETTING 11

11.8 Handlebar position



there are 2 holes at a distance of A to each other.

| | |
|-----------------|---------------|
| Hole distance A | 80mm (3.15in) |
|-----------------|---------------|

there are 2 holes at a distance of B to each other.

| | |
|-----------------|---------------|
| Hole distance B | 35mm (1.38in) |
|-----------------|---------------|

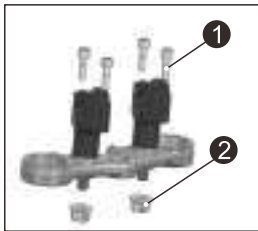
11.9 Adjusting the handlebar position



Danger of crashes A repaired handlebar poses a safety risk. If the handlebar is bent or straightened, the material becomes fatigued. The handlebar may break as a result, resulting in injury and or death.

11 SUSPENSION SETTING

- Change the handlebar if the handlebar is damaged or bent.



1. Loose screws ① and nuts ② .
2. Adjust the handlebar appropriate position.
3. Mount screws ① and tighten nuts ② evenly.

| | | |
|-------------------------|------------|------------------|
| Screws, handlebar clamp | M8×1.25×70 | 20Nm(14.8lbf.ft) |
| Nuts, handlebar clamp | M8 | 20Nm(14.8lbf.ft) |

i Info

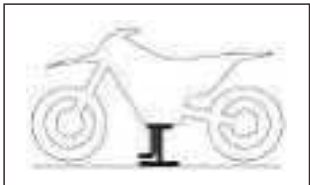
Make sure the cables and wiring are positioned correctly.

12.1 Raising the motorcycle with a lift stand

Note

Danger of damage The parked vehicle can roll away or fall over.

- Park the vehicle on a firm and level surface.



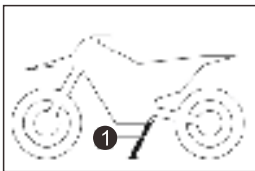
- Raise the motorcycle at the frame underneath the motor.
- ✓ Neither wheel is in contact with the ground.
- Secure the motorcycle against falling over.

12.2 Removing the motorcycle from the lift stand

Note

Danger of damage The parked vehicle can roll away or fall over.

- Park the vehicle on a firm and level surface.



- Remove the motorcycle from the lift stand.
- Remove the lift stand.
- To park the motorcycle, press side stand ① to ground with foot and lean the motorcycle on it.

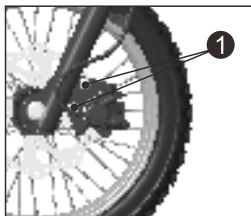
i Info

When you are riding, side stand ① must be folded up.

Finishing work

- Remove the motorcycle from the lift stand.
(p.85)

12.3 Removing the front shock absorber



Preparatory work

- Raise the motorcycle with a lift stand. (p.84)
- Remove the front wheel. 🛠️ (p.147)

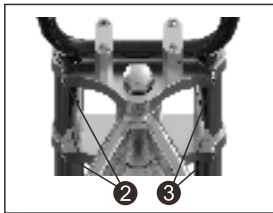
Main work

- Remove screws ① and take off the brake caliper.
- Allow the brake caliper and the brake line to hang loosely to the side.

i Info

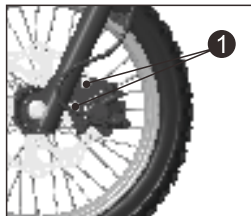
Do not kink the brake line.

12 SERVICE WORK ON THE CHASSIS



- Note the installation position of the fork legs.
- Loosen screws ② remove the left fork leg.
- Loosen screws ③ remove the right fork leg.

12.4 Installing the front shock absorber

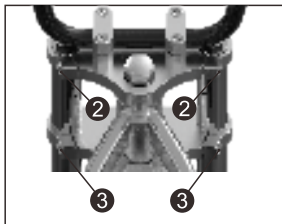


- Position the brake caliper, mount screw ①, and tighten.

Guideline

| | | |
|----------------------------|----|------------------|
| Screw, front brake caliper | M8 | 20Nm(14.8lbf.ft) |
|----------------------------|----|------------------|

SERVICE WORK ON THE CHASSIS 12



- Tighten screw ②

Guideline

| | | |
|---------------------------|----|------------------|
| Screw, upper triple clamp | M8 | 20Nm(14.8lbf.ft) |
|---------------------------|----|------------------|

- Tighten screw ③

Guideline

| | | |
|---------------------------|----|------------------|
| Screw, lower triple clamp | M8 | 15Nm(11.1lbf.ft) |
|---------------------------|----|------------------|

Finishing work

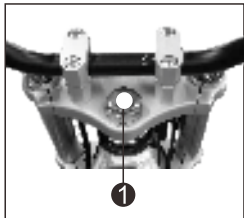
- Install the front wheel. 🛠 (p.148)

12.5 Removing the lower triple clamp

Preparatory work

- Raise the motorcycle with a lift stand.
(p.84)

12 SERVICE WORK ON THE CHASSIS



- Remove the front wheel. 🛠️ (p.147)
- Remove the front shock absorber. 🛠️ (p.86)
- Remove the front cover. (p.97)
- Remove front fender. (p.98)

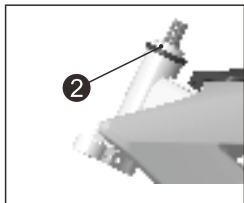
Main work

- Remove nut ①

i Info

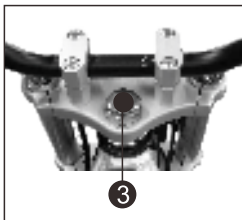
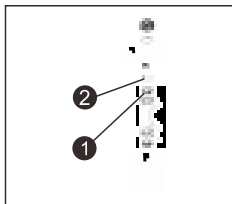
Cover the components to protect them against damage.

Do not kink the cables and lines.



-
- Remove locking nut ②
 - Remove the lower triple clamp with the steering stem.
 - Remove the upper steering head bearing.

12.6 Installing the lower triple clamp



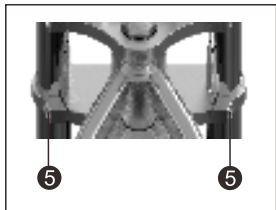
Main work

– Clean the bearing and, check for damage, and grease.

High viscosity grease

- Insert the lower triple clamp with the steering stem. Mount upper steering head bearing ❶ .
- Push on protective ring ❷ .
- Position the upper triple clamp with the handlebar.
- Mount nut ❸ , but do not tighten it yet

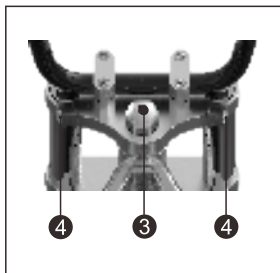
12 SERVICE WORK ON THE CHASSIS



– Tighten screws **5** .

Guideline

| | | |
|---------------------------|----|-------------------|
| Screw, lower triple clamp | M8 | 15Nm (11.1lbf.ft) |
|---------------------------|----|-------------------|



– Tighten nut **3** .

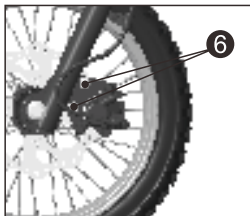
Guideline

| | | |
|--------------------|---------|------------------|
| Nut, steering head | M22×1.0 | 10Nm (7.4lbf.ft) |
|--------------------|---------|------------------|

– Tighten nut **4** .

Guideline

| | | |
|---------------------------|----|-------------------|
| Screw, upper triple clamp | M8 | 20Nm (14.8lbf.ft) |
|---------------------------|----|-------------------|



- Position the brake caliper, mount screw ⑥, and tighten.

Guideline

| | | |
|----------------------------|----|-------------------|
| Screw, front brake caliper | M8 | 20Nm (14.8lbf.ft) |
|----------------------------|----|-------------------|

Finishing work

- Install front fender. (p.99)
- Install the front cover. (p.98)
- Check that the cable and brake line are routed correctly.
- Install the front wheel. 🛠️ (p.148)
- Check the steering head bearing play. (p.93)
- Remove the motorcycle from the lift stand. (p.85)

12.7 Checking the steering head bearing play



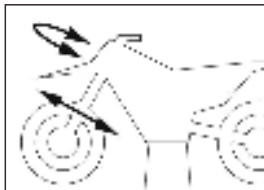
Warning

Danger of crashes Incorrect steering head bearing play impairs the handling characteristic and damages components.
– Correct incorrect steering head bearing play immediately.
(Your authorized Altis dealer will be glad to help.)



Info

If the vehicle is operated for a lengthy period with play in the steering head bearing, the bearings and the bearing seats in the frame can become damaged over time.



Preparatory work

- Raise the motorcycle with a lift stand.
(p.84)

Main work

- Move the handlebar to the straight-ahead position. Move the fork legs to and fro in the direction of travel.

Play should not be detectable on the steering head bearing.

» If there is detectable play:


- Adjust the steering head bearing play. 🛠️
(p.95)
- Move the handlebar to and fro over the entire steering range.

It must be possible to move the handlebar easily over the entire steering range. There should be no detectable detent positions.

» If detent positions are detected:

- Check the steering head bearing and replace if required.

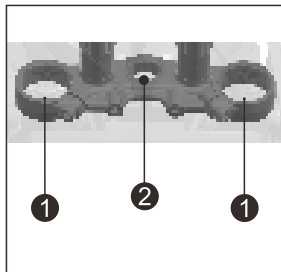
Finishing work

- Remove the motorcycle from the lift stand.
(p.85) 

12.8 Adjusting the steering head bearing play

Preparatory work

- Raise the motorcycle with a lift stand.
(p.84)



Main work

- Loosen screws ① .
- Loosen and retighten nut ② .

Guideline

| | | |
|--------------------|---------|-----------------|
| Nut, steering head | M22×1.0 | 10Nm(7.4lbf.ft) |
|--------------------|---------|-----------------|

- Using a plastic hammer, tap lightly on the upper triple clamp to avoid stresses.
- Tighten screws ① .

Guideline

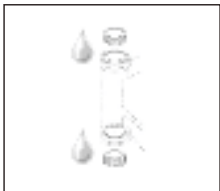
| | | |
|---------------------------|----|------------------|
| Screw, upper triple clamp | M8 | 20Nm(14.8lbf.ft) |
|---------------------------|----|------------------|

Finishing work

- Check the steering head bearing play. (p.93)
- Remove the motorcycle from the lift stand. (p.85)



12.9 Lubricating the steering head bearing

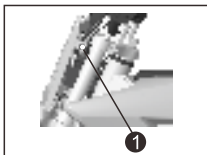


- Remove the lower triple clamp. 🛠️ (p.88)
- Install the lower triple clamp. 🛠️ (p.90)

i Info

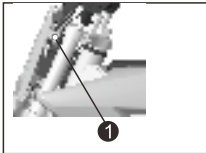
The steering head bearing is cleaned and lubricated in the course of removal and installation of the lower triple clamp.

12.10 Removing the front cover



- Remove screw ① .
- Remove the front cover from the front fender.

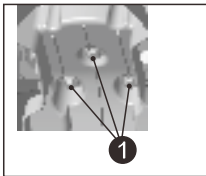
12.11 Installing the front cover



- Position the front cover.
- Mount and tighten screw ① .

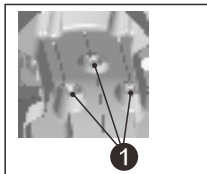
| | | |
|--------------------|----|--------------|
| Screw, front cover | M6 | 4Nm(3lbf.ft) |
|--------------------|----|--------------|

12.12 Removing front fender



- Remove screws ① , take off the front fender.

12.13 Installing front fender

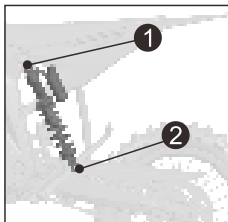


– Position the front fender, Mount and tighten screws ①.

Guideline:

| | | |
|---------------|----|-----------------|
| Screw, fender | M6 | 6Nm (4.4lbf.ft) |
|---------------|----|-----------------|

12.14 Removing the rear shock absorber



Preparatory work

– Raise the motorcycle with a lift stand. (p.84)

Main work

Note the installation position of the rear shock absorber.

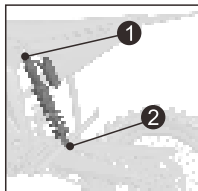
- Remove screw ① and lower rear fork carefully.
- Remove screws ② and remove the rear shock absorber.

12.15 Installing the rear shock absorber



Warning

Danger of crashes Modifications to the suspension setting may seriously alter the handling characteristic.



Main work

- Mount screw ① and tighten it.

Guideline

| | | |
|---------------------------|-----|-------------------|
| Screw, top shock absorber | M10 | 45Nm (33.2lbf.ft) |
|---------------------------|-----|-------------------|

12 SERVICE WORK ON THE CHASSIS

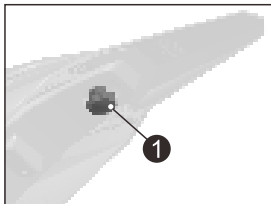
- Lift the rear fork, mount screw ② and tighten it.

| | | |
|------------------------------|-----|------------------|
| Screw, bottom shock absorber | M10 | 45Nm(33.2lbf.ft) |
|------------------------------|-----|------------------|

Finishing work

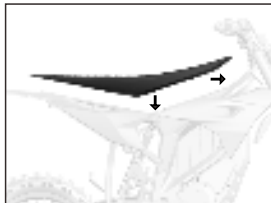
- Remove the motorcycle from the lift stand.
(p.85) ◀

12.16 Removing the seat



- Turn the seat lock key ① and raise the rear of the seat.
- Pull back the seat and remove it.

12.17 Installing the seat



- Hook the seat lug onto the frame holding lug , lower the seat at the rear, and push it forward.
- Push the seat down, the seat engages with an audible click.
- Finally, check that the seat is correctly locked and remove seat lock key.

12.18 Checking the chain for dirt

- Check the chain for coarse dirt accumulation.
- » If the chain is very dirty:
 - Clean the chain. (p.103)



12.19 Cleaning the chain



Warning

Danger of crashes Lubricants on the tires reduces the road grip.

- Remove lubricants from the tires using a suitable cleaning agent.



Warning

Danger of crashes Oil or grease on the brake discs reduces the braking effect.

- Always keep the brake discs free of oil and grease.
- Clean the brake discs with brake cleaner when necessary.

Note

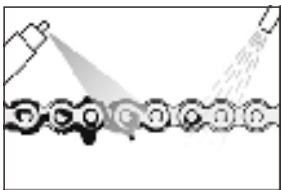
Environmental hazard Hazardous substances cause environmental damage.

- Dispose of oils, grease, cleaning agents, brake fluid etc. properly and in compliance with the applicable regulations.



Info

The service life of the chain depends largely on its maintenance.



Preparatory work

- Raise the motorcycle with a lift stand.

Main work

- Rinse off loose dirt with a soft jet of water.
- Remove old grease residue with chain cleaner.


Chain cleaner

- After drying, apply chain spray.

Off- road chain spray

– Pull back the seat and remove it.

Finishing work

– Remove the motorcycle from the lift stand.
(p.85) 

12.20 Checking the chain tension



Warning

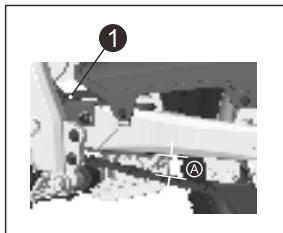
Danger of crashes Incorrect chain tension damages components and results in crashes.

If the chain is tensioned too much, the chain, engine sprocket, rear sprocket, transmission and rear wheel bearings wear more quickly. Some components may break if overloaded.

SERVICE WORK ON THE CHASSIS 12

If the chain is too loose, the chain may fall off the engine sprocket or the rear sprocket. as a result, the rear wheel locks or the engine will be damaged.

- Check the chain tension regularly.
- Set the chain tension in accordance with the specification.



Preparatory work

- Raise the motorcycle with a lift stand.
(p.84)

Main work

- Press the chain upward at the end of the chain sliding piece and determine chain tension **A**.


i Info

The top part of chain ① must be taut. Chain wear is not always even, so you should repeat this measurement at different chain positions.

| | |
|---------------|---------------------------|
| Chain tension | 25...45mm(0.98...1.76 in) |
|---------------|---------------------------|

- » If the chain tension does not meet the specification.
- Adjust the chain tension.

Finishing work

- Remove the motorcycle from the lift stand.
- (p.85) 

12.21 Adjusting the chain tension



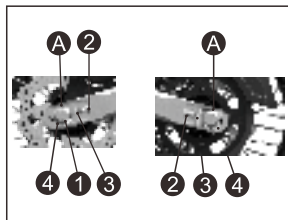
Warning

Danger of crashes Incorrect chain tension damages components and could result in a crash which could lead to injury.

If the chain is tensioned too much, the chain, motor sprocket, rear sprocket, transmission and rear wheel bearings wear more quickly. Some components may break if overloaded.

If the chain is too loose, the chain may fall off the motor sprocket or the rear sprocket. As a result, the rear wheel can lock and the motor will be damaged.

- Check the chain tension regularly.
 - Set the chain tension in accordance with the specification.
-



Preparatory work

- Raise the motorcycle with a lift stand. (p.84)
- Check the chain tension. (p.105)

Main work

- Loosen nut ① .
- Loosen nut ② .
- Adjust the chain tension by turning adjusting screws ③ left and right.

Guideline

| | |
|---------------|-----------------------------|
| Chain tension | 25...45 mm (0.98...1.76 in) |
|---------------|-----------------------------|


Turn the adjusting screws ③ on the left and right so that the markings on the left and right chain adjusters ④ are in the same position relative to the reference marks A . The rear wheel is then correctly aligned.

- Tighten nuts ② .
- Make sure that chain adjusters ④ are fitted correctly on adjusting screw ③ .
- Tighten nut ① .

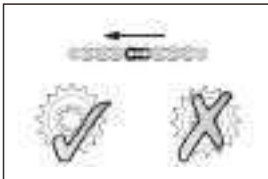
Guideline

| | | |
|-------------------------|---------|------------------|
| Nut, rear wheel spindle | M14×1.5 | 40Nm(29.5lbs.ft) |
|-------------------------|---------|------------------|

Finishing work

- Remove the motorcycle from the lift stand.
(p.85) 


12.22 Checking the chain, rear sprocket, motor sprocket, and chain guide



Preparatory work

- Raise the motorcycle with a lift stand.
(p.84)

Main work

- Check the chain, rear sprocket, and motor sprocket for wear.
- » If the chain, rear sprocket or motor sprocket is worn:
 - Change the drivetrain kit. 

i Info

The motor sprocket, rear sprocket, and chain should always be replaced together. When fitting the chain joint, always make sure that the closed side of the joint faces forward (riding direction).

– Check the chain for wear.

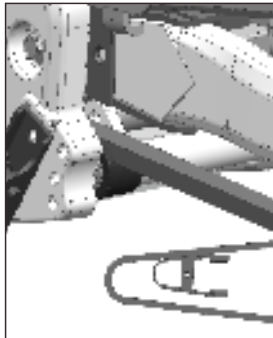
» If the chain is worn:

– Change the drivetrain kit. 

i Info

When a new chain is mounted, the rear sprocket and motor sprocket should also be changed. New chains wear out faster on old, worn sprockets.

12 SERVICE WORK ON THE CHASSIS



- Check the chain sliding piece for wear.
If the lower edge of the chain pins is in the line with, or below the chain sliding piece.
- Change the chain sliding piece. 🛠️
- Check that the chain sliding piece is firmly seated.
 - » If the chain sliding piece is loose.
- Tighten the screw of the chain sliding guard.

| | | |
|----------------------------|----|-----------------|
| Screw, chain sliding piece | M6 | 3Nm (2.2lbf.ft) |
|----------------------------|----|-----------------|

- Check the chain sliding wheel for wear.
If the lower edge of the chain pins is in the line with, or below the chain sliding wheel.



- Change the chain sliding wheel. 🛠️
- Check that the chain sliding wheel is firmly seated.
- » If the chain sliding wheel piece is loose:
 - Tighten the screw of the chain sliding wheel.

| | | |
|----------------------------|----|--------------------|
| Screw, chain sliding wheel | M8 | 15Nm (11.1 lbf.ft) |
|----------------------------|----|--------------------|



- Check the chain guide for wear.
- i** Info
Wear can be seen on the front of the chain guide.
- » If the light part of the chain guide is worn:
 - Change the chain guide. 🛠️

- Check that the chain guide is firmly seated.
- » If the chain guide is loose:
 - Tighten the screws on the chain guide.

| | | |
|--------------------|----|-------------------|
| Screw, chain guide | M8 | 15Nm (11.1lbf.ft) |
|--------------------|----|-------------------|

Finishing work

- Remove the motorcycle from the lift stand.
(p.85) ◀

12.23 Checking the frame



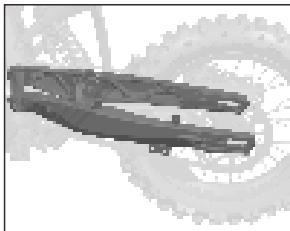
- Check the frame for cracks and deformation
- » If the frame exhibits cracks or deformation due to a mechanical impact:
 - Change the frame. 🛠️



Info

Always replace a frame that has been damaged due to a mechanical impact. Repair of the frame is not authorized by Altis. ◀

12.24 Checking the rear swingarm



- Check the rear fork for damage, cracking, and deformation.
- » If the rear fork shows signs of damage, cracking, or deformation:
 - Change the rear swingarm. 🔧

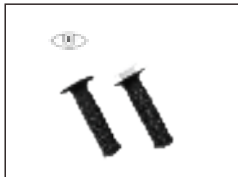
i Info

Always replace a damaged rear fork.
Repairing the rear swingarm is not authorized by Altis.



12.25 Checking the rubber grip

- Check the rubber handgrip on the handlebar for damage, wear, and looseness.
- » If a rubber grip is damaged, worn, or loose.
 - Change the rubber grip.

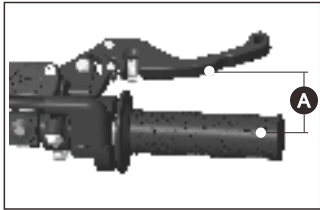


i Info

The rubber grips are vulcanized onto a sleeve on the left and onto the handle tube of the throttle grip on the right.

The left sleeve is installed onto the handlebar. The rubber grip can only be replaced with the sleeve or the throttle tube.

13.1 Adjusting position of front brake lever



- Check the basic position of the hand brake lever.
- Adjust the basic position of the hand brake lever with adjusting screw ❶ to rider's hand size.

i Info

Turn the adjusting screw clockwise to increase the distance “**A**” between the hand brake lever and the handlebar.

Turn the adjusting screw counter-clockwise to decrease the distance “**A**” between the hand brake lever and the handlebar.

The range of adjustment is limited.

13.2 Checking the brake discs

Warning

Danger of crashes Worn-out brake discs reduce the braking effect.

- Make sure that worn-out brake discs are replaced immediately. (Your authorized Altis dealer will be glad to help.)



- Check the front and rear brake disc thickness at multiple points for the dimension A.



Info

Wear reduces the thickness of the brake disc around the contact surface of the brake linings.

13 BRAKE SYSTEM

| Brake discs - wear limits | |
|---------------------------|------------------|
| front | 2.2mm (0.087 in) |
| Rear | 2.2mm (0.087 in) |

- » If the brake disc thickness is less than the specified value:
- Change the front brake disc. 🛠️
 - Change the rear brake disc. 🛠️
 - Check the front and rear brake discs for damage, cracking, and deformation.
 - Change the front brake disc. 🛠️
 - Change the rear brake disc. 🛠️



13.3 Checking the front brake fluid level

Warning

Danger of crashes An insufficient brake fluid level will cause the brake system to fail.

If the brake fluid level drops below the specified marking or the specified value, the brake system is leaking or the brake linings are worn down.

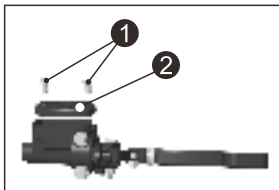
– Check the brake system and do not continue riding until the problem is eliminated. (Your authorized Altis dealer will be glad to help.)

Warning

Danger of crashes Old brake fluid reduces the braking effect.

13 BRAKE SYSTEM

– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule. (Your authorized Altis dealer will be glad to help.)



- Move the brake fluid reservoir mounted on the handlebar to a horizontal position.
- Remove screws ❶ .
- Take off cover ❷ .
- Check the brake fluid level.

| | |
|---------------------------------------|-------------|
| Brake fluid level below reservoir rim | 5mm (0.2in) |
|---------------------------------------|-------------|

» If the brake fluid level does not meet specifications:

- Add the front brake fluid. 🛠 (p.124)

– Position the cover with the membrane, mount and tighten the screws.



Info

Immediately clean up any brake fluid that has over-flowed or spilled using water.

13.4 Adding the front brake fluid



Warning

Danger of crashes An insufficient brake fluid level will cause the brake system to fail.

If the brake fluid level drops below the specified marking or the specified value, the brake system is leaking or the brake pads are worn down.

- Check the brake system and do not continue riding until the problem is eliminated. (Your authorized Altis dealer will be glad to help.)

Warning

Skin irritation Brake fluid causes skin irritation.

- Keep brake fluid out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Do not allow brake fluid to come into contact with the skin, the eyes or clothing.
- Consult a doctor immediately if brake fluid has been swallowed.
- Rinse the affected area with plenty of water in the event of contact with the skin.
- Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.

- If brake fluid spills on to your clothing, change the clothing.



Warning

Danger of accident Old brake fluid reduces the braking effect.

- Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule. (Your authorized Altis dealer will be glad to help.)

Note

Environmental hazard Hazardous substances cause environmental damage.

- Dispose of oils, grease, cleaning agents, brake fluid etc. properly and in compliance with the applicable regulations



Warning

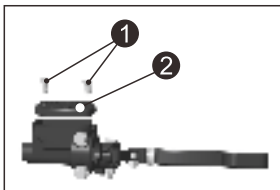
Danger of accident Unsuitable brake fluid damages the brake system.

i Info

Never use DOT 5 brake fluid. It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.

Avoid contact between brake fluid and painted parts. Brake fluid attacks paint.

Only use clean brake fluid from a sealed container.



Main work

- Move the brake fluid reservoir mounted on the handlebar to a horizontal position.
- Remove screws ① .
- Take off cover ② .
- Correct the brake fluid level.

Guideline

| | |
|---------------------------------------|-------------|
| Brake fluid level below reservoir rim | 5mm (0.2in) |
|---------------------------------------|-------------|

– Position the cover with the membrane. Mount and tighten the screws.



Info

Immediately clean up any brake fluid that has over-flowed or spilled using water.



13.5 Checking the rear brake fluid level



Warning

Danger of crashes An insufficient brake fluid level will cause the brake system to fail.

If the brake fluid level drops below the specified marking or the specified value, the brake system is leaking or the brake linings are worn down.

– Check the brake system and do not continue riding until the problem is eliminated. (Your authorized Altis dealer will be glad to help.)



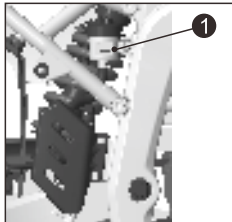
Warning

Danger of crashes Old brake fluid reduces the braking effect.

– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule. (Your authorized Green-ger dealer will be glad to help.)

– Stand vehicle upright.

– Check the brake fluid level in level viewer **1**.



- » If the brake fluid level is below the “lower” marking:
 - Add the rear brake fluid. (p.130)

13.6 Adding the rear brake fluid



Warning

Danger of crashes An insufficient brake fluid level will cause the brake system to fail.

If the brake fluid level drops below the specified marking or the specified value, the brake system is leaking or the brake pads are worn down.

- Check the brake system and do not continue riding until the problem is eliminated. (Your authorized Altis dealer will be glad to help.)



Warning

Skin irritation Brake fluid causes skin irritation.

- Keep brake fluid out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Do not allow brake fluid to come into contact with the skin, the eyes or clothing.
- Consult a doctor immediately if brake fluid has been swallowed.
- Rinse the affected area with plenty of water in the event of contact with the skin.
- Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.

- If brake fluid spills on to your clothing, change the clothing.



Warning

Danger of accident Old brake fluid reduces braking efficiency.

- Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule. (Your authorized Altis dealer will be glad to help.)

Note

Environmental hazard Hazardous substances cause environmental damage.

- Dispose of oils, grease, cleaning agents, brake fluid etc. properly and in compliance with the applicable regulations



Warning

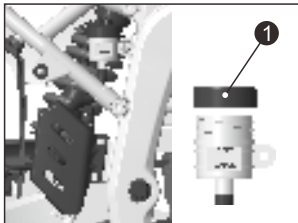
Danger of accident Unsuitable brake fluid damages the brake system.

i Info

Never use DOT 5 brake fluid. It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.

Avoid contact between brake fluid and painted parts. Brake fluid attacks paint.

Only use clean brake fluid from a sealed container.



Main work

- Take off cover ① .
- Add brake fluid up to “upper” marking.
- Mount and tighten cover.

13.7 Checking the free travel of the foot brake lever



Warning

Danger of crashes The brake system fails in the event of overheating.

If there is no free travel on the foot brake lever, pressure builds up in the brake system on the rear brake.

– Set the free travel on the foot brake lever in accordance with the specification.



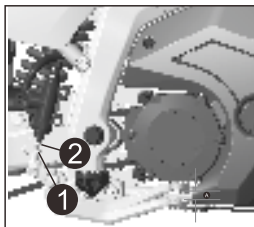
– Move the foot brake lever back and forth between the end stop and the foot brake cylinder piston bracket and check free travel **A**.

Guideline:

| | |
|---------------------------------|---------------------------------|
| Free travel of foot brake lever | 3 ... 5 mm (0.12 ... 0.2 in) |
|---------------------------------|---------------------------------|

- » If the free travel does not meet specifications:
- Adjust the free travel of the foot brake lever.

13.8 Adjusting the free travel of the foot brake lever



- Loosen nut ①.
- Turn push rod ② accordingly until you have free travel A.
- Hold push rod ② and tighten nut ①.

13.9 Checking the front brake pads



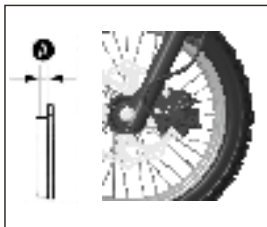
Warning

Danger of crashes Worn-out brake pads reduce the braking effect.

» If the minimum thickness is less than specified.

– Ensure that worn-out brake pads are replaced immediately.

(Your authorized Altis dealer will be glad to help.)



– Check the brake pads for minimum thickness **A**.

| | |
|----------------------------|--|
| Minimum thickness A | $\geq 1\text{mm}$ ($\geq 0.04\text{in}$) |
|----------------------------|--|

» If the minimum thickness is less than specified.

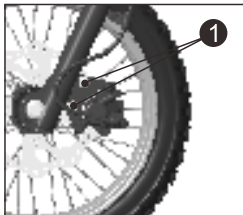
- Change the front brake pads. 🛠️ (p.137)
- Check the brake pads for damage and cracking.
 - » If damage or wear is encountered:
 - Change the front brake pads. 🛠️ (p.137)

13.10 Changing the front brake pads

Warning

Danger of crashes Incorrect servicing will cause the brake system to fail.

- Ensure that service work and repairs are performed professionally.
(Your authorized Altis dealer will be glad to help.)



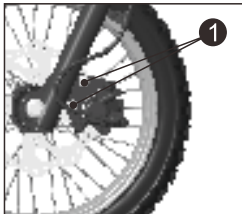
- Remove screw ❶.
- Press back the brake pads by slightly tilting the brake caliper laterally on the brake disc. Carefully pull the brake caliper backward from the brake disc.
- Remove brake caliper.
- Remove the brake pads.
- Clean the brake caliper and the brake caliper bracket.
- Position the new brake pads.



i Info

Always change the brake pads in pairs.

Ensure that the brake pads are correctly positioned in the holding spring.



Warning

Danger of crashes Oil or grease on the brake discs reduces the braking effect.

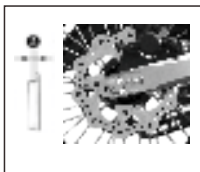
- Always keep the brake discs free of oil and grease.
- Clean the brake discs with brake cleaner when necessary.

-
- Check the brake discs.
 - Position the brake caliper, mount screw ①, and tighten.

Guideline

| | | |
|----------------------------|----|-------------------|
| Screw, front brake caliper | M8 | 20Nm (14.8lbs.ft) |
|----------------------------|----|-------------------|

13.11 Checking the rear brake pads



- Check the brake linings for minimum thickness **A**.

| | |
|----------------------------|--|
| Minimum thickness A | $\geq 1\text{mm}$ ($\geq 0.04\text{in}$) |
|----------------------------|--|

- » If the minimum thickness is less than specified:
 - Change the rear brake pads. 🛠️ (p.140)
 - Check the brake pads for damage and cracking.
- » If damage or wear is encountered
 - Change the rear brake pads. 🛠️ (p.140)

13.12 Changing the rear brake pads



Warning

Danger of crashes Incorrect servicing will cause the brake system to fail.

- Ensure that service work and repairs are performed professionally. (Your authorized Altis dealer will be glad to help.)



Warning

Skin irritation Brake fluid causes skin irritation.

- Keep brake fluid out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Do not allow brake fluid to come into contact with the skin, the eyes or clothing.
- Consult a doctor immediately if brake fluid has been swallowed.
- Rinse the affected area with plenty of water in the event of contact with the skin.

- Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.
- If brake fluid spills on to your clothing, change the clothing.



Warning

Danger of crashes Old brake fluid reduces the braking effect.

- Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule. (Your authorized Altis dealer will be glad to help.)

Warning

Danger of crashes Oil or grease on the brake discs reduces the braking effect.

- Always keep the brake discs free of oil and grease.
- Clean the brake discs with brake cleaner when necessary.



Warning

Danger of crashes Brake pads which have not been approved alter the braking efficiency. Not all brake pads are tested and approved for Altis motorcycles. The structure and friction coefficient of the brake pads, and thus their brake power, may vary greatly from that of original brake pads.

If brake pads are used that differ from the original equipment, compliance with the original homologation is not guaranteed. In this case, the vehicle no longer corresponds to its condition at delivery and the warranty shall be void.

– Only use brake pads approved and recommended by Altis.

Note

Environmental hazard Hazardous substances cause environmental damage.

BRAKE SYSTEM 13

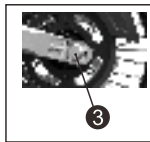
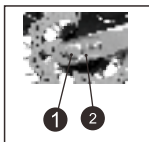
– Dispose of oils, grease, cleaning agents, brake fluid etc. properly and in compliance with the applicable regulations.

i Info

Never use DOT 5 brake fluid. It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.

Avoid contact between brake fluid and painted parts. Brake fluid attacks paint.

Only use clean brake fluid from a sealed container.



Preparatory work

- Raise the motorcycle with a lift stand.
- Remove nut ① .
- Take off chain adjuster ② .

13 BRAKE SYSTEM



- Remove the wheel spindle ③ .
- Take off the brake caliper.

i Info

- Do not kink or damage the brake line.
-

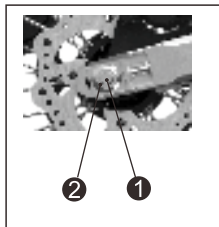


- Remove the brake pads.
- Clean the brake caliper and the brake caliper bracket.
- Allow the brake caliper and the brake line to hang loosely to the side.
- Check the brake discs. (p.120)
- Position the new brake pads.

i Info

Always change the brake linings in pairs.

Ensure that the brake linings are correctly positioned in the holding spring.



– Position the brake caliper on the brake disc.

✓ The brake linings are correctly positioned.

– Mount the wheel spindle ① .

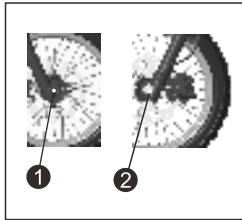
– Mount and tighten nut ② .

Finishing work

– Remove the motorcycle from the lift stand.

(p.85)

14.1 Removing the front wheel



Preparatory work

- Raise the motorcycle with a lift stand. (p.84)

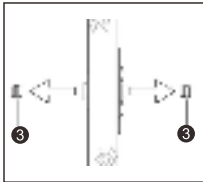
Main work

- Loosen nut ① .
- Remove wheel spindle ② .

Warning

Danger of crashes Damaged brake discs reduce the braking effect.

- Always lay the wheel down in such a way that the brake disc is not damaged.



- Hold the front wheel and remove the wheel spindle. Take the front wheel out of the fork.

i **Info**

Do not actuate the hand brake lever when the front wheel is removed.

- Remove spacers ③ .

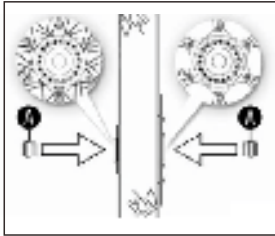
14.2 Installing the front wheel

⚠ **Warning**

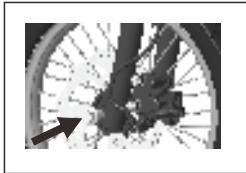
Danger of crashes Oil or grease on the brake discs reduces the braking effect.

- Always keep the brake discs free of oil and grease.
- Clean the brake discs with brake cleaner when necessary.

14 WHEELS, TIRES



- Check the wheel bearing for damage and wear.
- » If the wheel bearing is damaged or worn:
 - Change front wheel bearing.
 - Clean and grease the contact surfaces **A** of the spacers.
 - Insert the spacers.



- Clean and the wheel spindle.
- Position the front wheel.
- ✓ The brake linings are correctly positioned.
- Insert the wheel spindle.

WHEELS, TIRES 14



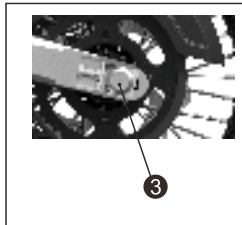
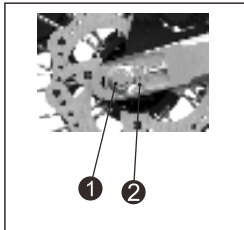
- Mount and tighten nut ❶ .

| | | |
|--------------------------|---------|------------------|
| Nut, front wheel spindle | M14×1.5 | 40Nm(29.5lbs.ft) |
|--------------------------|---------|------------------|

- Operate the hand brake lever several times until the brake linings are seated correctly against the brake disc.
- Remove the motorcycle from the lift stand.
- Operate the front brake and compress the fork a few times firmly.
- ✓ The fork legs straighten.



14.3 Removing the rear wheel



Preparatory work

- Raise the motorcycle with a lift stand. (p.84)

Main work

- Remove nut ① .
- Take off chain adjuster ② .

- Pull out wheel spindle ③ far enough to allow the rear wheel to be pushed forward.
- Push the rear wheel forward as far as possible. Remove the chain from the rear sprocket.

i Info

Cover the components to protect them against damage.

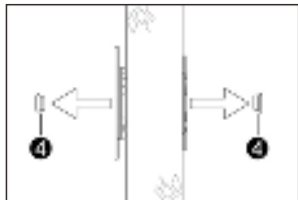


Warning

Danger of crashes Damaged brake discs reduce the braking effect.

– Always lay the wheel down in such a way that the brake disc is not damaged.

– Hold the rear wheel and remove the wheel spindle. Take the rear wheel out of the rear fork.



Info

Do not operate the rear brake lever when the rear wheel is removed.

– Remove spacers ④ .



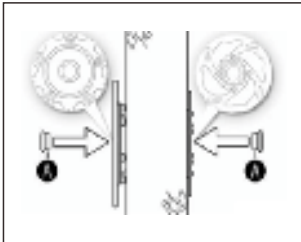
14.4 Installing the rear wheel



Warning

Danger of crashes Oil or grease on the brake discs reduces the braking effect.

- Always keep the brake discs free of oil and grease.
- Clean the brake discs with brake cleaner when necessary.



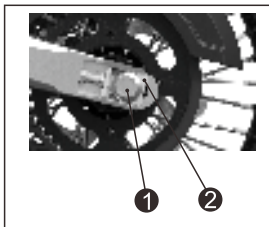
Main work

- Check the wheel bearing for damage and wear.
- » If the wheel bearing is damaged or worn:
 - Change the rear wheel bearing. 🔧

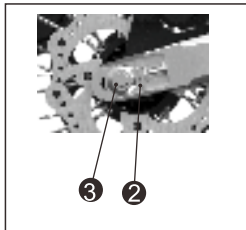
- Clean and grease the contact surfaces **A** of the spacers.
 - Insert the spacers.
-

i Info

Insert the wide spacer on the left in the direction of travel.



- Clean and grease wheel spindle **1**.
- Position the rear wheel and insert wheel spindle.
- ✓ The brake linings are correctly positioned.
- Mount the chain.
- Position chain adjuster **2** on both sides and push the wheel spindle in all the way.



- Mount nut ③ , but do not tighten it yet.
- Make sure that the chain adjusters are fitted correctly on the adjusting screws.
- Check the chain tension. (p.105)
- Tighten nut ③ .

Guideline

| | | |
|-------------------------|---------|-------------------|
| Nut, rear wheel spindle | M14×1.5 | 40Nm(29.5 lbf.ft) |
|-------------------------|---------|-------------------|

- Operate the foot brake lever repeatedly until the brake pads are in contact with the brake disc and there is a pressure point.

Finishing work

- Remove the motorcycle from the lift stand. (p.85)

14.5 Checking the tire condition

i Info

Only mount tires approved and/or recommended by Altis. Other tires could have a negative effect on handling characteristics.

The type, condition, and pressure of the tires all have a major impact on the handling characteristic of the motorcycle.

The tires mounted on the front and rear wheels must have a similar profile.

Worn tires have a negative effect on handling characteristics, especially on wet surfaces.



– Check the front and rear tires for cuts, embedded objects, and other damage.

» If the tires have cuts, run-in objects, or other damage:

- Change the tires. 🛠️
- Check the tread depth.

i Info

Observe the minimum profile depth required by national law

| | |
|---------------------|--|
| Minimum tread depth | $\geq 2\text{mm}$ ($\geq 0.08\text{in}$) |
|---------------------|--|

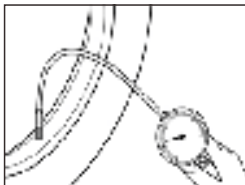
» If the tread depth is less than the minimum tread depth:

- Change the tires. 🛠️

14.6 Checking tire pressure

i Info

Low tire pressure leads to abnormal wear and overheating of the tire. Correct tire pressure ensures optimal riding comfort and maximum tire service life.



- Remove protection cap.
- Check tire pressure when the tires are cold.

| Off-road tire pressure | |
|------------------------|------------------|
| Front | 2.20 bar (32psi) |
| Rear | 2.48 bar (36psi) |

- » If the tire pressure does not meet specifications:
- Correct tire pressure.
 - Mount the protection cap



14.7 Checking spoke tension



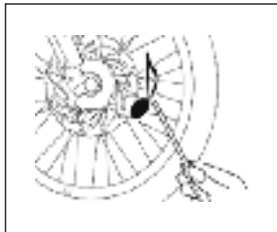
Warning

Danger of crashes Incorrectly tensioned spokes impair the handling characteristic and result in secondary damage.

The spokes break due to being overloaded if they are too tightly tensioned. If the tension in the spokes is too low, then lateral and radial run-out will form in the wheel. Other spokes will become looser as a result.

– Check spoke tension regularly, and in particular on a new vehicle. (Your authorized Altis dealer will be glad to help.)

– Strike each spoke briefly using a screwdriver blade.



i Info

The frequency of the sound depends on the spoke length and spoke diameter.

If you hear different tone frequencies from different spokes of equal length and diameter, this is an indication of different spoke tensions.

You should hear a high note.

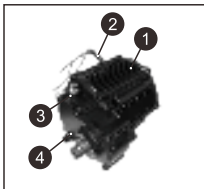
» If the spoke tension differs:

– Check the spoke torque. 🛠

Guideline

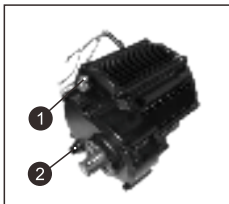
| | | |
|--------------|------|-----------------|
| Spoke nipple | M3.5 | 3Nm (2.2lbs.ft) |
|--------------|------|-----------------|

15.1 Overview of the motor



- ① Motor
- ② Motor cable
- ③ Oil fill hole and exhaust hole
- ④ Oil drain hole

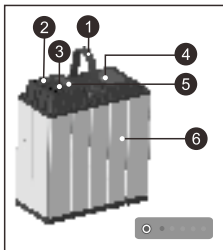
15.2 Change the gearbox oil



- Remove screw ②, drain waste oil and tighten screw ② .
- Remove screw ① , filling oil and tighten screw ① .

| Oil specification | Volume |
|-------------------|--------------|
| 85W / 140 | 50ml (1.7oz) |

15.3 Overview of the battery



- ① Carrying handle
- ② Discharging port
- ③ Charging port
- ④ Lithium battery
- ⑤ Power display
- ⑥ Lithium battery

15.4 Removing the lithium battery



Warning

Risk of injury There is a risk of electric shock when working on high-voltage components. Work on high-voltage components requires special training, qualifications and tools.

- Work which has not been described and explained may only be performed by appropriately trained. (Your authorized Altis dealer will be glad to help.)
- Do not open the electric motor or lithium battery. (Your authorized Altis dealer will be glad to help.)

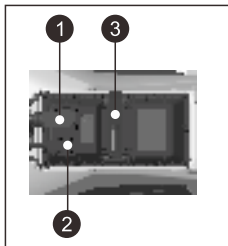
Note

Environmental hazard A lithium-ion battery contains components and elements that are harmful to the environment.

- Never throw a lithium-ion battery into the household trash.
- Dispose of the lithium-ion battery properly and in compliance with the applicable regulations. (Your authorized Altis dealer will be glad to help.)

Preparatory work:

- Deactivate the vehicle.
- Removing the seat.



Main work:

- Remove discharging cable plug ①.
- Remove charging cable plug ②.
- Remove the battery pressure plate ③.

Finally, remove the lithium battery.

15.5 Installing the lithium battery



Warning

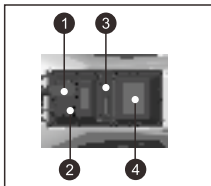
Risk of injury The lithium battery is very heavy.

- Only lift the lithium battery by the carrying handle.
- Make sure that nobody is pinched when the lithium battery is removed or installed.

Note

Material damage Components damaged or destroyed by water or dirt.

- Before installing the lithium battery, check the charge and discharge cable plug for cleanliness.
- Check the lithium battery charge and discharge port for cleanliness.
- Clean the battery charge/discharge port and the cable charge / discharge plug without using water or compressed air if the battery charge / discharge port or the cable charge/discharge plug is dirty.



Main work:

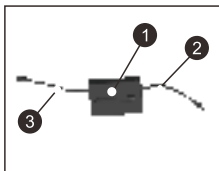
- Position lithium battery ④ in the vehicle.
- Install discharging cable plug ① .
- Install charging cable plug ② .

– Fix the battery pressure plate ③ .

Finishing work:

– Lock the seat.

15.6 Overview of battery charger



① Battery charger

② Charging cable

③ Power cord

15.7 Positioning the battery charger



Warning

Risk of injury If the battery charger is used incorrectly, its intrinsic safety cannot be guaranteed.

The battery charger is only suitable for use with a battery.

- Only use the battery charger with a battery.
- Only operate the battery charger using household sockets with a ground conductor.
- Do not use any additional adapters or extensions.
- Follow the applicable safety instructions of the power connection.



Warning

Risk of injury There is a risk of electric shock if the battery charger or the cables have been manipulated or damaged.

The battery charger does not contain any parts which require maintenance.

- Do not modify the battery charger or the cables.
- Only use original cables.

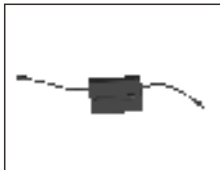
- Never open the battery charger housing.
 - Do not insert any objects into the battery charger housing from the outside.
 - Do not use the battery charger if cables, plugs, or parts of the battery charger have been damaged or are soiled.
-

i Info

The battery charger contains sensitive electronics and must be handled with appropriate care. The battery charger may be damaged or destroyed if it is dropped, knocked or otherwise subject to mechanical overload.

When transporting the battery charger, ensure appropriate means of securing the cargo.

Damage caused due to improper handling or improper transport is excluded from the manufacturer warranty.



- Place the battery charger on a firm, level, and horizontal surface.
-



Info

the battery charger should only be used in a dry environment, as moisture may penetrate into the interior when connecting and disconnecting the connections.


- Check the battery charger and mains cable for external damage.
- Ensure the battery charger is adequately ventilated.
- the battery charger characteristics.

Guideline

| | |
|--------------------------|------------|
| Input voltage | 100~240V |
| Input voltage frequency | 50-60HZ |
| Maximum charging voltage | DC83.5V |
| Maximum input current | AC230V, 6A |
| Output current | 83.5V 11A |

i Info

The change in temperature can cause moisture to condense on the battery charger.

- Ensure that the power plug for the battery charger always remains easily accessible. 

15.8 Charging the battery

Warning

Danger of burns The metal housing of the battery charger becomes hot during operation.

- Only touch the battery charger by the carrying handle.
- After charging, allow the battery charger to cool before stowing it away.

Battery characteristics

Guideline

| | |
|-------------------|------------------|
| Battery cell type | LG INR21700M50LT |
|-------------------|------------------|

MOTOR, BATTERY, BATTERY CHARGER 15

| | |
|-----------------------------------|------------------|
| Connection method | 20S 7P |
| Nominal voltage | 72V |
| Max. charge voltage | 83V |
| Standard charge current | 10A |
| Max. charge current | 21A |
| Standard discharge current | 50A |
| Max. continuous discharge current | 80A (20 minutes) |
| Discharge cutoff voltage | 56V |

Environmental hazard A lithium-ion battery contains components and elements that are harmful to the environment.

- Never throw a battery into the household trash.
 - Dispose of the battery properly and in compliance with the applicable regulations. (Your authorized Altis dealer will be glad to help.)
-



Info

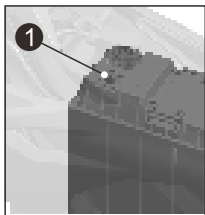
Do not activate the vehicle while the battery charger is connected to the battery.



Info

If the temperature of the battery exceeds the permissible value while it is being charged, the battery charger stops charging.

After the temperature of the battery returns to the permissible range, charging is resumed automatically.



Preparatory work

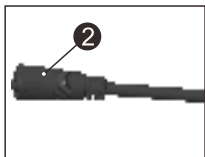
- Position the battery charger. (p.166)

Main work

- Remove charging port protection cap ①.

- charging plug ② .

- Make sure that all plugs, bushings, and cables are dry.



Warning

Risk of injury

The intrinsic safety of the battery can only be guaranteed if the original battery charger is used.

15 MOTOR, BATTERY, BATTERY CHARGER

- Only use the original battery charger to charge the battery.

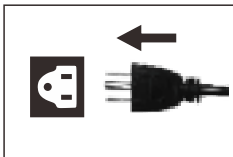


- Connect the battery charger to the battery.

Guideline

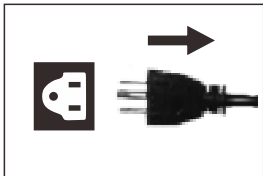
Observe plug marking **A**

Insert the plug straight so that the contacts are not bent.



- Connect the power plug for the battery charger to the mains connection.

✓ Charging starts automatically.



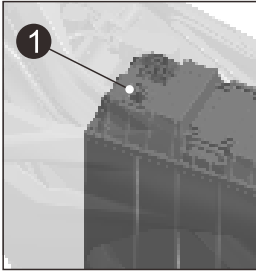
i Info

It is recommended not to leave the vehicle unattended for long periods during charging.

- Make sure that all plugs, bushings, and cables are dry.
- Disconnect the battery charger power plug from the mains connection.
- Unlock the charging plug lock counterclockwise and disconnect the charging cable from the battery.

Guideline:

1. Counterclockwise unlock charging plug nut with right hand.
2. Pull out charging plug.



- Check charging socket protection cap ① .

If the charging socket protection cap is dirty:

- Clean the charging socket protection cap without water or compressed air.

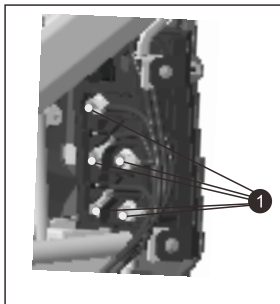
If the charging socket protection cap is damaged or worn:


- Change the charging socket protection cap.

15.9 Check controller three-phase cable, power line installation screws

Warning

Risk of safety If controller three-phase cable, power line installation screws loosen, spark will be generated, risk of fire if this occurs.



- Park the vehicle on level surface.
- Check controller three-phase cable, power line installation screws ① for looseness.
- » If controller three-phase cable, power line installation screws ① is loose.
- Tighten screws ① . 

| | | |
|---------------------|----|-----------------|
| Installation screws | M4 | 5Nm (3.7lbf.ft) |
|---------------------|----|-----------------|

i Info
Controller three-phase cable, power line should be checked every six months.

16.1 Cooling



The battery ① and the electric motor ② are air-cooled.

Cooling is effected by the air stream.

The lower the speed, the less the cooling effect.

17.1 Cleaning the motorcycle

Note

Material damage The vehicle and the battery are not suitable for pressure cleaning.

The high pressure forces water into the electrical components, connectors throttle cables, and bearings, etc. As a result, components may be damaged or destroyed.

- Never clean the vehicle and battery with pressure cleaner or a powerful jet of water.
- Do not point a jet of water toward the battery discharge plug, even if the protection cap has been mounted.

Note

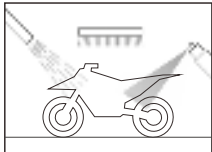
Environmental hazard Hazardous substances cause environmental damage.

– Dispose of oils, grease, cleaning agents, brake fluid etc. properly and in compliance with the applicable regulations.

i Info

Clean the motorcycle regularly to maintain its value and appearance over a long period.

Avoid direct sunshine when cleaning the motorcycle.



- Remove coarse dirt particles with a gentle water jet.
- Spray heavily soiled parts with a normal commercial motorcycle cleaner, working with a soft brush.

i Info

Use warm water containing normal motorcycle cleaner and a soft sponge.

Never apply motorcycle cleaner to the dry motorcycle.

Always rinse the motorcycle with water before use.

– After rinsing the motorcycle with a gentle spray of water, allow it to dry thoroughly.



Warning

Danger of crashes Moisture and dirt impair the brake system.

- Explain to your younger that he or she must brake carefully several times to dry out and remove dirt from the brake linings and the brake discs.
 - After cleaning, your child should ride a short distance until the brake system has dried through careful braking.
-

i Info

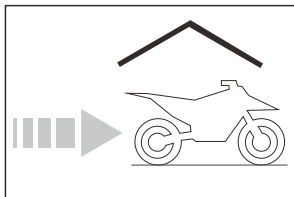
The heat causes the water to evaporate even in inaccessible parts of the vehicle.

- After the motorcycle has cooled down, lubricate all moving parts and pivot points.
- Clean the chain. (p.103)
- Treat bare metal (except for brake discs) with a corrosion inhibitor.
- Treat all plastic parts and powder-coated parts with a mild cleaning and care product.

18.1 Storage

i Info

If the motorcycle is not being used for an extended length of time, additional measure are recommended, have service work, repairs or conversions performed outside the motorcycling season, if possible this allows you to avoid long waiting periods when the next season starts.



- Check all motorcycle parts for function and parts.
- Clean the motorcycle. (p.180)
- Check tire pressure. (p.158)
- Charge the battery. (p.171)

Guideline

Empty the battery to below 30% charging level.

i Info

Lithium ion power battery has self-discharge phenomenon, long-term storage will lead to over-discharge of the battery and damage the internal structure of the battery, reduce the battery life. Therefore, long-term storage of lithium-ion power batteries should be recharged every 3 to 6 months.

STORAGE 18

- Store the vehicle in a dry location that is not subject to large fluctuations in temperature.

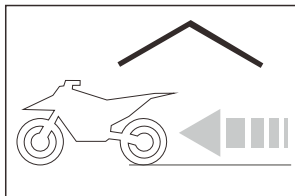
| | |
|---------------------------|-------------------------|
| Ideal storage temperature | 10...20°C (50 ~ 68°F) |
|---------------------------|-------------------------|


i **Info**

if the vehicle was placed on a lift stand, the tire and spring elements will be relieved of weight.

-
- Raise the motorcycle with a lift stand. (p.84)
 - Cover the motorcycle with a tarp or cover that is permeable to air.

18.2 Preparing for use after storage



- Remove the motorcycle from the lift stand. (p.85)
- Charge the battery. (p.171)
- Perform checks and maintenance measures when preparing for use. (p.55)
- Take a test ride. 



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