



**ADVENTURE
INDUSTRY
ASSOCIATION**

Technical Skills Guideline: Four-Wheel Drive (4x4) Vehicle Operation

Approval page

The signatories hereof, being duly authorised thereto, by their signatures hereto authorise the execution of the work detailed herein, or confirm their acceptance of the contents hereof and authorise the implementation/adoption thereof, as the case may be, for and on behalf of the parties represented by them.

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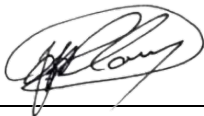
Approved



SA AIA Executive Director:
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29 October 2025

Date



SA AIA Offroad & Overlanding Chapter
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1 Introduction

This Skills Guideline forms part of the official South African Adventure Industry Association (SA AIA) Technical Skills Framework.

It defines the minimum competencies, responsibilities, and environmental standards for instructors, facilitators, and guides conducting off-road and overlanding training or guided 4WD experiences in South Africa.

Applicable Skills/Categories (Linked Activities):

- a. Four-Wheel Drive Vehicle Operation
- b. Off-Road Driving and Recovery Techniques
- c. Overlanding Guiding and Vehicle-Based Adventure Travel
- d. 4WD Driver Education and Recreational Training

These standards align with the SA AIA Off-Road and Overlanding Chapter curriculum for operating four-wheel drive vehicles in on-road and off-road conditions.

2 Scope of Practice

Terrain and Environmental Setting:

Unsurfaced roads, trails, and natural terrain including gravel, sand, riverbeds, mud, grass, rock, and forest tracks graded 2 to 5.

Duration:

Single-day or multi-day learning and driving activities, including theory and practical application.

Client Supervision Ratio:

- a. Training activities - 1 trainer: 8 learners (maximum)
- b. Guided recreational experiences – 1 guide: 6 clients (maximum)

Typical Group Profile:

Recreational 4WD owners, adventure tourists, and overlanding participants seeking safe, environmentally responsible off-road driving competence.

Limitations:

- a. No competitive motorsport.
- b. No high-risk recovery beyond achieved competence.
- c. No 4WD activities beyond achieved competence.
- d. No unsupervised night operations unless risk-assessed and appropriately equipped.
- e. Operation limited to vehicles in legal, roadworthy condition.

3 Required Technical Skills

The SA AIA 4WD Vehicle Operation pathway consists of **three progressive levels of training and competence**.

Each level builds on the previous one and is aligned with the SA AIA Off-Road and Overlanding Chapter curriculum.

3.1 Level 1: Introduction to Techniques

Purpose: Establish foundational awareness of 4WD operation, safety, and environmental responsibility.

Technical Competencies Summary:

- a. Identify the major components of a 4WD vehicle and understand their functions.
- b. Demonstrate correct seating position and steering posture.
- c. Conduct visual inspections before and after trail use.
- d. Identify correct tyre pressures for variety of terrains.
- e. Identify basic recovery equipment and their purpose.
- f. Recognise the risks associated with off-road driving and the need for safe communication.
- g. Explain relevant legislation and licensing requirements.
- h. Describe environmental awareness principles and trail etiquette.

3.2 Level 2: Basic Techniques

Purpose: Develop operational competence for moderate terrain and introduce safe recovery and environmental management.

Technical Competencies Summary:

- a. Select and use 4WD configurations (high/low range, diff lock, traction control).
- b. Demonstrate correct procedures for ascents, descents, side slopes, and cross-axle terrain (up to trail grade 3).
- c. Apply correct tyre pressures and vehicle preparations for changing conditions.
- d. Demonstrate safe driving and recovery teamwork using hand signals and verbal communication.
- e. Conduct a full pre-trail and mid-trail inspection.
- f. Perform basic recovery using tow straps, spades, or traction boards.
- g. Apply environmental and "Leave No Trace" principles in practice.
- h. Identify the implications of vehicle modifications and accessories.

3.3 Level 3: Advanced Techniques

Purpose: Build advanced driving and recovery proficiency for challenging terrain and expedition leadership.

Technical Competencies Summary:

- a. Execute advanced recoveries using winches, snatch blocks, kinetic ropes, and high-lift or exhaust jacks.
- b. Demonstrate safe use of recovery gear under high-tension load and manage recovery triangles.
- c. Drive graded 4-5 trails, including sand dunes, mud, snow, and river crossings.
- d. Conduct emergency hill-start recovery on failed climbs.
- e. Plan and lead multi-day overlanding expeditions, including route, fuel, and risk management.
- f. Perform tyre removal, repair, and refitting in field conditions.
- g. Manage convoy procedures, communication systems, and client supervision.
- h. Implement comprehensive risk management, emergency planning, and environmental compliance.

4 Minimum Safety Standards

Table 1: Minimum Safety Standards

Aspect	Minimum Standard
Guide-to-Client Ratio	1: 8 (training) / 1: 6 (4WD activities/tours)
Vehicle Condition	Roadworthy and trail-ready with functional recovery points
Personal Protective Equipment	Closed shoes, gloves, eye protection recommended
Recovery Equipment Inspection	Before and after each activity; record defects
Minimum First Aid Level	Level 1 (Basic Life Support); Level 2 for remote sites; Wilderness First Aid - specific encouraged for remote areas.
Fire Safety	Fire extinguisher per vehicle
Communication	Tow-way radio or mobile coverage confirmed; emergency contact plan documented

Weather Criteria	Facilitation suspended under flood, lightning or severe weather risk
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Facilitators and guides must comply with the SA AIA Off-Road and Overlanding Chapter's venue requirements (Table 7 and 8 in the Accreditation Document).

5 Environmental Considerations

Activities must uphold the SA AIA Environmental and Sustainability Policy and the Leave No Trace principles.

- Stay on designated tracks to prevent erosion and vegetation damage.
- Observe trail grading and load limitations to protect environment
- Dispose of waste responsibly and pack out non-biodegradable items.
- Avoid disturbing wildlife and sensitive ecosystems.
- Use established camping and recovery zones where possible.
- Manage fuel, oil, and chemical spills immediately and report to landowners or authorities.
- Use open fires safely only where permitted and fully extinguish before departure.

6 Assessment Criteria

SA AIA's assessment framework distinguishes between *trainee competency standards* and *trainer facilitation responsibilities*.

Both are aligned with the SA AIA Off-Road and Overlanding Chapter's 4WD Operating Courses Curriculum.

6.1 Trainee Competency Standards

Trainees must demonstrate that they can safely and confidently perform the following in both simulated and real-world conditions.

6.1.1 Level 1: Introduction to Techniques

Practical Competence Summary

- Conduct a vehicle inspection before and after trail driving.
- Demonstrate safe seating position and correct hand placement.
- Drive through introductory terrain and grade 2 obstacles safely.
- Demonstrate communication signals when being guided through an obstacle.

Knowledge Competence Summary

- a. Explain the difference between 2WD, AWD, and 4WD.
- b. Identify major components and describe their functions.
- c. State correct tyre pressures for different surfaces.
- d. Describe basic environmental care and legal requirements.

6.1.2 Level 2: Basic Techniques

Practical Competence Summary

- a. Operate vehicle on grade 3 trails with correct gear selection and throttle control.
- b. Execute a basic self-recovery using a spade or traction board.
- c. Demonstrate towing and recovery using safe-rated straps and shackles.
- d. Apply correct procedures for ascents, descents, and side slopes.

Knowledge Competence Summary

- a. Identify hazards and explain the "recovery triangle".
- b. Explain safe working loads and equipment ratings.
- c. Describe environmental risk reduction and waste management.
- d. Explain communication and teamwork in group convoys.

6.1.3 Level 3: Advanced Techniques

Practical Competence Summary

- a. Execute advanced recovery methods (winch, snatch, high-lift, exhaust jack).
- b. Demonstrate water crossings, sand driving, and recovery procedures.
- c. Plan and lead a simulated multi-vehicle expedition.
- d. Conduct a full field tyre repair and reinstallation.

Knowledge Competence Summary

- a. Calculate pull ratios and winch capacity requirements.
- b. Explain risk factors and mitigation for advanced terrain driving.
- c. Identify regulatory requirements for cross-border and protected area driving.
- d. Demonstrate expedition planning principles: fuel, load, communication, and emergency response.

6.1.4 Performance Benchmarks (All Levels)

- a. Minimum 80% pass for theory / oral questioning.
- b. Practical tasks completed without unsafe practices or damage.
- c. Environmental and safety protocols observed throughout.
- d. Professional communication and teamwork demonstrated.

Learners who achieve all requirements are recognised as **Competent** for the applicable 4WD course level.

6.2 Trainer / Instructor Guidelines

Accredited SA AIA Instructors or Assessors must:

- a. **Plan:** Structure training according to the official SA AIA curriculum modules and ensure all outcomes are covered (knowledge, skills, and attitude).
- b. **Demonstrate:** Model correct techniques before asking learners to perform them.
- c. **Supervise:** Maintain constant line-of-sight supervision during practical recovery activities.
- d. **Assess:** Use observation checklists, verbal questioning, and debriefing to collect evidence.
- e. **Document:** Record attendance, competence decisions, and any corrective feedback.
- f. **Report:** Provide SA AIA with course results, learner evaluation summaries, and any incidents.
- g. **Re-mediate:** Provide additional instruction where learners are "Not Yet Competent (NYC)" and reassess before certification.
- h. **Certify:** Issue learner certificates only after competence is confirmed, following SA AIA's certificate template and numbering rules.

Instructors must hold a valid **SA AIA Instructor Accreditation Number**, and training may only occur through an accredited **Skills Development Part (SDP)** venue approved under the SA AIA Off-Road and Overlanding Chapter requirements.

7 Legal and Regulatory Notes

- a. **Tourism Act (2014):** Adventure Tourist Guides must be registered with their provincial registrar.
- b. **Occupational Health and Safety Act (1993):** All participants must adhere to risk management and incident reporting protocols.
- c. **National Road Traffic Act (1996):** All vehicles must be licensed and compliant for public road use.
- d. **Protected Areas and Permit Regulations:** Access to conservation areas requires appropriate permits and compliance with landowner policies.
- e. **Acceptable Legal Business Practices:** SDPs and tour operators must maintain legal business practices.

- f. Insurance and Liability:** SDPs, tour operators, instructors and guides must maintain personal and public liability insurance and obtain client indemnities.
- g. SA AIA Accreditation Requirements:** All Skills Development Partners and Instructors must be accredited in accordance with the Off-Road and Overlanding Chapter Accreditation Requirements document (latest revision).

8 Applicable Roles

Table 2: Applicable Roles

Role	Description	Supervision Level
Assistant Instructor / Guide	Supports an accredited instructor or certified guide during training or guided activities	Works under direct supervision of an accredited Instructor or Certified Guide.
Certified Site-Specific Guide (4WD Operator)	Leads a 4WD activity within defined scope on graded trail (Grade 3). Manages clients and safety on site.	Works independently under organisational policies.
Independent Guide / Overlanding Leader	Plans and manages multi-day vehicle-based journeys including route planning, camp setup, and client safety.	Works autonomously within legal and SA AIA standards.
Instructor / Trainer	Designs, delivers and assesses SA AIA-accredited 4WD training programmes and mentors development of new guides.	Accredited under SA AIA Off-Road and Overlanding Chapter.

9 Annexures

9.1 Annexure A: referenced and applicable documents

9.1.1 Referenced documents

–None.

9.1.2 Applicable documents

- a. SA AIA Operating Four-Wheel Drive Vehicles in Off-road Conditions Courses Curriculum (latest revision).
- b. SA AIA Skills Development Partner and Facilitator Accreditation Requirements (latest revision).

9.2 Nondisclosure

SA AIA will not disclose any information contained in the accreditation documentation to third parties. The information will only be used internally for the purposes of accreditation, as specified in this document.

9.3 Annexure B: abbreviations

Abbreviation	Description
4WD	4 wheel-drive
SA AIA	South African Adventure Industry Association
SDP	skills development partner

10 Version Control and Review

Item	Details
Date of Publication	October 2025
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Responsible SA AIA Subcommittee	Off-Road and Overlanding Chapter / Skills and Ratification Committee