

World Rescue Organisation



ROAD RESCUE CHALLENGE RULES

Wellington, New Zealand, 2011

These challenge rules have been adopted by the WRO for use in the 2011 World Rescue Challenge as a trial. They are based on the ARRO challenge rules. Any reference to ARRO in this document should be interpreted as a reference to the WRO.

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Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 1 of 18		Review By:	December 2011

Contents

1. Definitions:.....	3
2. Team membership:.....	3
3. Injury:.....	3
4. Pit access:.....	4
5. Insurance:.....	4
6. Registration:	4
7. Assessors and Appeals:.....	4
8. Assessment sheets:	5
9. Scenarios:.....	5
10. Scenario Aims and Class Objectives:	6
10A. Prop positioning and relocation:.....	8
11. Tools and Equipment:	8
12. Equipment available in pits:.....	9
13. Team presentation at Challenge:	11
14. Breakdown of scenario:.....	11
15. Assessment of performance:.....	11
16. Debriefing:	12
17. Personal Protective Equipment:	12
18. Challenge safety:.....	12
19. Timing:.....	13
20. Casualties:.....	13
21. Non-attendance of team:.....	13
22. Information:	13
23. Team Leaders and Medics Briefing:.....	13
24. Determination of Results:	13
25. Disqualification:	15
26. Participation in the Learning Symposium and Workshop Pit:.....	15
Appendix 1 – Recommended Pit Rescue Equipment List:	16
Appendix 2 – Recommended Pit Medical Equipment List:	18

Warning – Uncontrolled when printed! The current version of this document is kept on the ARRO website.

Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 2 of 18		Review By:	December 2011

1. Definitions:

The term “Organisers” hereafter will mean the Australasian Road Rescue Organisation Inc. as the official organisers of the road rescue challenge. The term “Host” hereafter will mean the agency(s) or organisation(s) hosting any particular challenge.

2. Team membership:

Each team will consist of six (6) members, one of whom must be designated team leader and one as medic/first aider. All personnel will be allowed to participate in all classes. At the discretion of the Chief Assessor, a team may substitute a team member in the case of an injury.

If, during a scenario, a team member is injured and has to withdraw, the team, if able, may continue until they finish or ‘Time’ is called.

Team members may only participate if they can demonstrate competency in either:

- Road rescue by holding, as a minimum, the Australian Public Safety Training Package (APSTP) Unit of Competency PUASAR002B ‘Undertake Road Accident Rescue’, or equivalent; or
- Pre-hospital emergency care by holding, as a minimum, the APSTP Unit of Competency PUAEME002C ‘Manage injuries at an emergency incident’, or equivalent.

In addition, in the case of the medical competency, it is expected that team medics will be competent in the administration of oxygen to PUAEME003C ‘Administer oxygen in an emergency situation’, or equivalent.

The winning team from any one year may return as ‘defending champions’ in the following year without having to change their team membership. Should that team win two years in a row, they would be required to change their membership before being eligible to participate in the third consecutive year. A team that has been Australasian Champions two years in a row may only enter in the third consecutive year if a minimum of two members of the team not including the reserve is changed and the team leader is rotated to another person. All other teams may enter from one year to the next without changing membership.

3. Injury:

If, during the challenge, an accident or injury occurs to a team member, casualty, spectator or any person which affects the running of the scenario, the injury will be advised to the Organisers as an authentic occurrence (i.e. ‘No duff’). The Chief Assessor, Assessor or Safety Officer will immediately instigate competent medical attention to the situation via the local provider or crew on standby at the site. The delay or ceasing of that scenario will be at the discretion of the Assessor Panel Leader in that pit. The Challenge Coordinator is to be advised immediately.

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Authorised by: ARRO Executive

Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 3 of 18

Review By: December 2011

4. Pit access:

The pit area will be off limits to all persons unless authorised by the Organisers. Authorised persons will be admitted entry only by pass or other approved means.

5. Insurance:

Adequate Workers Compensation and or Injury Insurance for the participating teams will be the responsibility of that team's Service, Agency or "Employing Organisation". A letter and/or insurance certificate confirming adequate coverage of the team will be required with payment of the entry fee.

6. Registration:

Team application and registration for this challenge can only proceed on the official entry form supplied, accompanied by the prescribed fee which will be determined by the Organisers from year to year. As part of the process of registration teams must confirm that all members of the team comply with the requirements of rules 2 and 17 of this Challenge.

Should more teams register for the challenge than there are places in the program, preference will be given to applications on the following criteria:

- Agency members will be guaranteed one team entry (up to two teams, at the Organiser's discretion, shall be entitled to enter at a member's rate determined by the Organisers).
- Host agencies will be given preference for up to two teams over non-host agencies from year to year.

Preference will then be given in the following order:

- A team from an Agency that has never participated before.
- A team that is from an Agency that is not an Agency member.

Organisers will endeavour to give as many teams as practicable an opportunity to participate.

Registration of arrival will take place prior to the challenge. (See timetable for further information).

Teams that are unable to participate in the challenge must notify the Organisers in writing of their decision to withdraw, or they will be deemed to be a 'No show' and be disqualified. Teams that withdraw less than 45 days before the first official day of the challenge will forfeit their entry fee.

7. Assessors and Appeals:

A Chief Assessor will be appointed to co-ordinate the Assessor panels and resolve any disputes. The team leader of any team that has a grievance or dispute must report it in writing to the Chief Assessor within one hour of completing the scenario concerned on the day.

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Authorised by: ARRO Executive

Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 4 of 18

Review By: December 2011

All appeals in respect of a technical performance and associated scoring will be heard by the Chief Assessor who will, where required, investigate or discuss the issue with any involved assessors and whose deliberation is final.

All allegations of unfair assessment will be investigated thoroughly from all perspectives by the Chief Assessor who will present their findings to the ARRO Executive Committee for their deliberation.

Challenge Assessor panels will comprise at least 3 persons assessing team performance in, command, technical and medical disciplines. All Assessors must be individual or temporary members of ARRO. Assessor Panel(s) will be formed for each challenge class with Assessor Panel Leaders(s) being selected at that time. Each Assessor panel will assess all teams attempting one class only so that each team demonstrates their skill before each Assessor panel.

In addition to the Assessors appointed to each class for a challenge, ARRO may also appoint an Assessor Mentor to each class. This person will be a senior (more experienced) Assessor whose role will be to monitor the standard of feedback provided to teams by the Assessor panel. The Assessor Mentor will give feedback where required to the Assessors, as well as provide training to Shadow (trainee) Assessors during the challenge. In the event that a member of an Assessor panel is unable to continue assessing, subject to approval of the Chief Assessor and a matching skill set of the mentor with the unavailable person, the Mentor will assume the role of the Assessor.

8. **Assessment sheets:**

The assessment sheets will remain the property of the Organisers and will not be available for viewing or scrutiny by any unauthorised persons. Assessors will complete the assessment sheet during the scenario and confirm their scores in ink prior to the team debrief. No further amendments to the assessment sheets will then be made. Score sheet summaries for each team will be made available to that team after the conclusion of the challenge. Each Assessor will have a different mix of parameters to assess based on their expertise.

9. **Scenarios:**

There will be a bank of scenarios controlled by the Organisers. The exact scenario delivered to each team in each class will remain confidential. Scenario duration will be:

- **Entrapped Rescue** class – 30 minutes.
- **Controlled Rescue** class – 30 minutes.
- **Immediate Rescue** class – 20 minutes.

The Organisers will determine the sequence in which the teams participate prior to the challenge in order to ensure each team has access to its preferred brand of hydraulic equipment and that there is reasonable time between classes.

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Authorised by: ARRO Executive

Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 5 of 18

Review By: December 2011

10. Scenario Aims and Class Objectives:

The road rescue challenge is designed to meet the following outcomes:

- Replicate road rescue scenarios that emergency response crews maybe called to attend.
- Create an environment where:
 - Teams have the opportunity to demonstrate a range of techniques and options to extricate casualties.
 - Team performance can be analysed over a series of extrication scenarios.
 - Learning and education in all facets of vehicle extrication is promoted.
 - Participants will leave being able to perform more competently at road rescue scenes, exercising current techniques in vehicle extrication and casualty treatment.
 - Participants have an enjoyable experience.

As part of the process of demonstrating their skill, teams must implement at least one ARRO recognised technique in each class. Teams will be objectively assessed on the outcome of the application of their technique (e.g. final space made) as well as the efficiency and safety of its execution. Teams that do not implement recognised techniques will most likely receive an assessment in the basic range from command and technical assessors.

Class Descriptors:

Class	Team Objective	Time	Complexity
Entrapped Rescue	To demonstrate primary hydraulic rescue tool use for access, release and removal of a physically trapped casualty	30 min	Live casualty or manikin (simulated live) – entrapped by vehicle/prop and/or injury. Some injuries treatable in vehicle. Entrapped vehicle plus props.
Controlled Rescue	To demonstrate the access, release and removal of a casualty/s trapped by injury entrapment and / or limb entrapment.	30 min	Two casualties, either manikin and / or live, both treated as conscious and confined to vehicle or immediate impact area. Some injuries treatable at scene. Single or multiple vehicle plus props.
Immediate Rescue	To demonstrate safe, but rapid access and removal for a time critical patient	20 min	Live casualty confined in vehicle. Some injuries maybe treatable in vehicle. Single vehicle plus props.

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Authorised by: ARRO Executive

Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 6 of 18

Review By: December 2011

All classes will have access to a full set of hydraulic, air, electric and hand tools as provided by the hosts. Refer to rule 11 for more detail.

Definition of phases of vehicle extrication rescue and effect on assessment:

Extrication can be divided into three broad phases:

- Casualty access and space making
- Extrication options for release
- Casualty packaging and pathway

Entrapped Rescue: Sufficient space will need to be created for medical intervention and casualty release/packaging reflective to their mechanism of injury. To achieve success teams should work within the full three phases of vehicle extrication rescue to affect a thorough release and removal of the casualty. The phases being:

1. Casualty Access/Space creation
2. Physical extrication options/plan
3. Final casualty pathway

Controlled Rescue: Teams are expected to triage the casualties and identify the medical priority for extrication. This should be recognised within the size up process. To achieve success teams will need to work efficiently and manage all the resources at their disposal to complete extrication of all casualties within the available time frame.

Immediate Rescue: Teams are expected to recognise the immediate life saving needs of the casualty. To achieve success teams will need to demonstrate a balance between efficiency, safety and urgency to achieve the task within the prescribed time frame.

To achieve these outcomes in each class teams should demonstrate techniques consistent with the overall technique based philosophy.

Overall Technique Based Philosophy:

Side Removal Techniques – Full side (doors spread/removed, pillar cut and removed)
Inverted full side (doors spread/removed, pillar cut and removed)
Side fold down
Inverted side fold down
B pillar rip
Third door removal
Inverted third door removal

Roof Removal Techniques - Full or partial roof removal
Roof flap (forward, rear side, partial)

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Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 7 of 18		Review By:	December 2011

	Tunnelling (cutting along roof rails and removal of roof section) Oystering
Internal Space Making -	Cross ramming Steering wheel relocation Dash relocation (roll or lift) Rear access (thru boot, removing rear parcel shelf)
Vehicle Lifting -	Airbags (with cribbing techniques) Hydraulics (with cribbing techniques) Hi-lift jacks (with cribbing techniques) Other (with cribbing techniques)
Vehicle Relocation -	Cable winch (Tirfor type etc) Chain winch (Come along type etc) Other

10A. Prop positioning and relocation:

Props may be positioned in pits to represent field objects, road furniture or other vehicles on the road. Every effort will be made by the organisers and hosts to ensure the realism of these props. This means that if the object is intended to be fixed and immovable, it will be placed in the scenario in such a way as to make it immovable. If the ARRO Scenario Manager is unable to create an equitable scenario a simulated immovable object may be used. Clarification about the mobility of any prop can be sought from the Command Assessor at any stage during a scenario.

11. Tools and Equipment:

The Hosts will arrange to provide a range of makes and models of rescue tools which will ensure as much as possible of the equipment listed in the Organiser's recommended pit equipment list (See Appendix 1) is provided at each pit. All Entrapped, Controlled and Immediate Rescue pits will contain similar hydraulic, electric and air operated equipment in accordance with the rules for those classes of challenge. Every effort will be made by the Hosts and the Organisers to ensure that the preferred make of hydraulic tools is available for each team, but this is not guaranteed.

Teams are expected to supply their own consumables (e.g. PPE, tapes, sprays, etc). Hosts are asked to ensure they have sufficient stock to re-supply teams, but this should not be assumed by participating teams.

Teams may bring tools and / or equipment for use in any of the pits. All of these items, including personal equipment belts and their contents, must be scrutinised by Assessors at a time and place determined by the Organisers, prior to the commencement of the Challenge. Items that are supplied in the tool dump, which perform a similar function to equipment that teams introduce will be removed. This

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Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 8 of 18		Review By:	December 2011

is to ensure that teams bringing additional equipment do not gain a quantity advantage.

Engineering certification must be produced for any tool or piece of equipment brought by a team that is likely to bear load or be put under mechanical stress. The Assessors' decision on tool and equipment suitability will be final.

Teams may use radios to communicate between their members (e.g. Team leader and medic) during a scenario provided a minimum of one listening set on the same frequency is provided to the Assessor panel before the commencement of their scenario. Teams operating such systems outside their normal jurisdiction must also ensure they either arrange to operate on a frequency allocated to the host agency or they provide written approval from the Commonwealth Department of Communications, Spectrum Management Agency to operate on the particular frequency they will use.

The following items of equipment are prohibited this year, but will be the subject of review by the ARRO Technical Committee in the future:

- Knives that do not have a locking and shatter proof blade. Examples include Stanley type knives and the retractable hobby knives that have disposable blades designed to snap off at predetermined points;
- Knives for which the blade is not sheathed when not in use;
- Hack saw blades that are not bi-metal construction (i.e. shatter proof); and
- Devices designed to restrain the deployment of Supplementary Restraint Systems (SRS) in motor vehicles.

Teams may choose whether to leave their equipment in the tool dump for all teams to use or place the items out for their own scenario only.

N.B. All team members should make themselves familiar with any tool that they may use at the Challenge. The Organisers recommends that tools should only be used by people competent in their operation.

12. Equipment available in pits:

The Hosts, on advice from ARRO, will assemble a recommended set of basic equipment for each pit. This kit will be as close to identical in each pit as the Hosts can manage and will be based on the recommended list supplied by ARRO. In addition, a range of specialist hydraulic rescue equipment will be available in each of the pits as per the list below. It is recommended that the hosts approach rescue tool manufacturers for equipment to fulfil the pit requirements. *Two manufacturers are listed here as an example of some of the most common tool suppliers used by rescue teams who enter the ARC; Lukas and Holmatro.*

If during the scenario a team requires an anchor point for vehicle relocation or stabilisation, the team leader should approach the Command Assessor and request an anchor point location and direction.

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Authorised by: ARRO Executive

Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 9 of 18

Review By: December 2011

Overview of hydraulic equipment types for each pit:

Entrapped: Dual pump;
Mid range spreader;
Largest available cutter;
Rams x 2 (large and mid);
Combi tool;
Chains for spreader;
Small cutter (pedal or mini); and
Ram support.

Controlled: Dual pump;
Mid range spreader;
Largest available cutter;
Rams x 2 (large and mid); and
Ram support.

Immediate: Dual pump;
Mid range spreader;
Largest available cutter; and
Combi tool.

Specific details of equipment types:

(minimum specifications, higher specification equipment should be placed in the Entrapped Pit first, then cascaded to the Controlled and then Immediate Pits)

Pumps: Dual outlet, petrol powered pump and hand pump equivalents from each manufacturer

Spreaders: Lukas SP310 and Holmatro SP4340 (including adaptors and chains for Entrapped Pit only)

Cutters: Lukas S510 and Holmatro CU4340 NCT or
Lukas S330 and Holmatro CU4335 NCT or
Lukas S511 and Holmatro CU4350 NCT

Combi Tool: Lukas SC350 or SC550 and Holmatro CT4120 or CT4150 or battery version
Lukas LKE55 and Holmatro BCT4120

Rams: Set 1 option - Lukas 1 x R420 and 1 x R422 and R414
Holmatro 1 x TR4340 and 1 x TR4350 and RA4332
Set 2 option - Lukas 1 x R410 and 1 x R412 and R414
Holmatro 1 x RA4331 and 1 x RA4332

Mini cutters: Equivilant models form each manufacturer

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Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 10 of 18		Review By:	December 2011

Other: Hydraulic hoses - 1 x twin hose reel plus 1 loose hose each, Lukas and Holmatro or 3 x loose hoses each, Lukas and Holmatro

13. Team presentation at Challenge:

Teams will present themselves at a location nominated by the Hosts, and specified during the Team briefing, well prior to the time indicated on the timetable for their equipment inspection. Once the team presents they are to remain there until they are escorted to the tool staging to commence their equipment inspection. The team will have a set time as detailed on the timetable to stage all of their tools and equipment. When the team has either completed equipment preparations or the time has expired, they will be taken to an isolation area out of sight of the pit to allow for the staging of their scenario. After the team leaves the pit equipment area no member of the team or their supporters shall be allowed to make any further adjustments to the pit equipment or supplement the cache with any additional items. Any items the team identifies as being missing or unserviceable are to be brought to the attention of the Pit Manager before the team leaves the pit area. The Pit Manager will be responsible for resolving the issue and communicating the outcome to the team while they are in isolation. The team will be escorted back to the challenge pit once their scenario has been staged.

While in isolation, the use of mobile phones, pagers and digital cameras is prohibited by team members.

14. Breakdown of scenario:

At the conclusion of their scenario, each team must help in the break down of the tools and equipment and assist the pit team in reorganising items ready for the next scenario. This may be varied at the discretion of the Hosts subject to the number of personnel in the pit crew available to break the scenario down.

15. Assessment of performance:

A panel of qualified Assessors will assess each team's performance. The parameters assessed are detailed in the Assessor's Guidelines and on the Challenge Assessment Sheets. These are based on the ARRO Technical Committee's opinion of better practice in the science of road rescue. To that end teams are encouraged to strive for the standard of excellence described in all areas, especially extrication techniques and casualty care and safety.

Teams should note that Assessors are briefed to assess a team's performance on what they see and hear, not what they expect to see and hear. With this in mind teams are urged not to 'play up' to the Assessors by giving a running commentary of what they might do under certain conditions, but to actually do what they would normally do if they encountered the same scenario on the road.

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Authorised by: ARRO Executive

Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 11 of 18

Review By: December 2011

16. Debriefing:

Following each scenario in each class the Assessor panel managing that class will conduct a short debrief with each participating team. The debrief is designed to provide a learning opportunity for all involved. To that end teams are encouraged to have their reserve or manager take notes or video the discussion. Subject to approval by both the team leader and the Assessor panel leader, observers are welcome in any debrief.

17. Personal Protective Equipment:

All competing team members will at all times during the challenge wear suitable clothing and personal protective equipment as approved by their agency. As a minimum, suitable turn out gear, coveralls, safety boots, eye protection (in the form of safety glasses), and where appropriate ear and/or respiratory protection is required. Teams representing agencies that require their personnel to wear and use helmets with visors (for facial protection) will be expected to wear and use them during the challenge.

In keeping with occupational health and safety work practices, teams are expected to supply and use their own latex gloves, dust masks and other consumable personal protective equipment supplies.

N.B. Teams may only wear protective clothing that has been authorised by their Service or Agency. This personal protective equipment must meet with an approved standard, e.g. Australian Standards Association (ASA), New Zealand Standards Association, National Fire Protection Authority (NFPA), Occupational Health & Safety Authority (OHSA) or similar international organisations. If the protective clothing to be worn in the challenge is not the same as normally worn for operational turn outs by a team, then a letter confirming it is authorised for use is required from the head of the Agency or Service at the pre challenge team briefing.

18. Challenge safety:

Where the command “STILL” or “FREEZE” or where a whistle is blown, ALL members of the team will immediately stop their actions. This command indicates that a safety problem exists. Time will be stopped until the safety issue is rectified. Once addressed the Assessor Panel Leader will give the instruction for the team to continue and the clock will re-commence.

If there is any other safety stoppages during the same evolution, the time will not stop and the team will have to rectify the situation while the clock continues to run.

The above safety calls can be made by any of the Assessors or Safety Officers. If the problem can't be rectified the Chief Assessor may disqualify the team or cancel the evolution.

Warning – Uncontrolled when printed! The current version of this document is kept on the ARRO website.

Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 12 of 18		Review By:	December 2011

19. Timing:

Assessors in each pit will be responsible for accurate timing of the scenario. The Assessor Panel Leader will call “time” when time has elapsed. Alternatively, the team leader will call “time” before the available time has elapsed, when the casualty has been extricated and the Team Leader believes the team has completed the scenario.

20. Casualties:

Live people and mannequins will be used in this Challenge.

Teams will be expected to assess the casualties for injury and provide treatment consistent with the injuries they find and their skills. Specific consideration should be given to maintaining the dignity of the casualties in this public training environment.

Mannequins will be used to represent live or deceased persons. Deceased mannequins will be clearly identified.

21. Non-attendance of team:

In the event of a ‘No Show’ by any registered team at their appointed time for equipment inspection, the Organisers may disqualify them from that class.

22. Information:

The Organisers reserve the right to use any and all information that may be obtained from the Challenge and its participants for educational purposes.

23. Team Leaders and Medics Briefing:

A briefing will be held at a time to be notified prior to the Challenge. It is mandatory for all team leaders and medics to attend. Team managers may also attend if a team has someone nominated to this role. Other team members are invited to attend the briefing, however; only team leaders and medics may ask questions.

Some or all members of the following groups may also attend the briefing:

- ARRO event management team for this challenge.
- Representatives of the host agency.
- ARRO Executive.
- ARRO guests, including representatives of the host agency for the following year.
- Others at the discretion of the ARRO Event Coordinator.

24. Determination of Results:

The Organisers will determine the prizes to be awarded from year to year. Determination of results will be based on the following criteria:

- Each discipline being assessed (Command, Technical and Medical) will be worth the same number of points.

Warning – Uncontrolled when printed! The current version of this document is kept on the ARRO website.

Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 13 of 18		Review By:	December 2011

- Each class being assessed (Entrapped, Controlled and Immediate) will be worth the same number of points.
- Points allocated by each assessor will be used to determine the ranking of that team relative to the other teams in the challenge for each assessor.
- All assessors will assess all teams once over the course of the challenge.
- Rankings will be allocated for each assessor in such a manner that the team that scores the highest score from an assessor will be given a 'rank score' equal to the number of teams in the challenge. The team that scores the next highest score from that assessor will be allocated a 'rank score' one less and so on. The team that scores the lowest from that assessor will be allocated a 'rank score' of 1.
- Rank scores for each team from the different assessors will be added together.

Winners of individual classes and categories will be determined as follows:

Individual class	The team with highest sum of the rank scores from each of assessors in that class.
Best Team Leader	The team leader with the highest sum of rank scores of all command assessors.
Best Medical Team	The medical team with the highest sum of rank scores of all medical assessors.
Best Technical Team	The technical team with the highest sum of rank scores of all technical assessors.
Overall Champions	The team with the highest sum of rank scores from all assessors in all classes.

Count back procedure:

Where two teams are tied for any place in any class, discipline or other grouping except overall champion, the following count back process will apply:

- The first category on each relevant assessor's score sheet will be summed. The winner will be the team or individual whose score is the highest.
- If the scores remain equal, the procedure will be determined with the next category down on the relevant score sheets and so on until a difference is found.
- If every single category on the relevant score sheets are the same, the category of award will be declared a dead heat and no prize at the next level down will be awarded (i.e. if a dead heat for winner, no 2nd prize).

Count back for Overall Champion:

- If two teams have an equal rank score for 3rd place overall, 2nd place overall or overall champion the award will be given to the team that placed highest of the two in the entrapped class.
- If the entrapped class is a dead heat, then the award will be given to the team that placed highest of the two in the controlled class.
- If both entrapped and controlled are dead heats then the award will be given to the team that placed highest of the two in the immediate class.
- If all classes are dead heats the count back procedure above will be used starting with the entrapped, followed by controlled and then immediate classes.

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Authorised by: ARRO Executive

Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 14 of 18

Review By: December 2011

Spirit of the Challenge will be determined by a popular vote of the team leaders. This award is presented to the team that best represents the spirit of learning and improvement in road rescue service delivery through in the Challenge and its activities.

25. Disqualification:

Any team or team member that does not adhere to these rules or brings disrepute upon the Challenge may be disqualified.

Any matter concerning the possibility of a team disqualification or a matter bringing the Challenge into disrepute will be heard by a committee made up of the Chief Assessor and two other members from the organising body. Any decision made by this group will be final.

Spectators or team supporters may barrack and encourage teams in the spirit of fair play; however any “coaching”, including calling time remaining, from the spectators or team supporters will result in a “Freeze” being called, but the clock will continue to run. The Assessor panel leader will give a warning to the offending person or persons. Any subsequent coaching call will result in time being called on the participating team.

26. Participation in the Learning Symposium and Workshop Pit:

The intent of the Australasian Rescue Challenge is to explore, develop and promote best practice in the delivery of integrated road rescue services. To this end the challenge each year includes a learning symposium the day before the challenge and a practical workshop pit during the challenge. To ensure maximum learning opportunity by all participants, attendance at the symposium and participation in the workshop pit is mandatory. Teams that fail to attend these activities will be disqualified from participating in the Challenge.

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Authorised by:	ARRO Executive	Original Issue:	September 1996
Document Owner:	Challenge Coordinator	Current Version:	April 2011
Page 15 of 18		Review By:	December 2011

Appendix 1 – Recommended Pit Rescue Equipment List:

Detailed below is ARRO’s equipment list. It is expected that the host of the Road Rescue Challenge sanctioned by ARRO will provide this list of equipment on each pit.

ITEM	QTY
General Equipment	
Broom, yard	1
Salvage sheet/large tarpaulin 4m x 4m	2
Shovel, wide mouth, long handled	1
Crow bar (2m)	1
Haligan tool with cutting tip	1
Wrecking bar	1
Step ladder 1800mm	1
Ropes (12mm X 6m)	4
Extinguisher, Foam, 9 litre	1
Extinguisher, Dry Chemical 9kg	1
Torch	1
Electric reciprocating saw (mains or battery)	2
Power extension leads (20m)	2
Spill absorbent material	1 packet
Duct tape	1 roll
Debris sheet (tool staging) 3m x 2m	1
Debris sheet small 2m x 1m	1

Hand Tools	
Socket set	1
Spanner set	Combined
Screwdriver set	Set
Rubber mallet	1
Pliers	1
Side cutters	1
Vice grips	1
Seat belt cutter	1
Glass cutting saw (hand operated)	1
Hacksaw	1

Casualty Protection Equipment	
Edge protection soft – protective cover 260 x 300mm (approx dimensions)	4
Edge protection soft – protective blanket 600 x 600mm (approx dimensions)	4
Edge protection soft – protective blanket 1500 x 600mm (approx dimensions)	2
Edge protection rigid - PVC pipe 150mm diameter x 400mm	2
Edge protection rigid - PVC pipe 100mm diameter x 400mm	4
Glass catcher	1

ITEM	QTY
Glass breaking tool – spring loaded punch	1

Stabilisation Equipment	
Blocks, timber, step	4

Cribbing – Timber	
Blocks, timber approx. 100 x 50 x 500mm	20
Blocks, timber approx. 100 x 100 x 500mm	20
Wedges, timber 100 x 100 x 500mm	12
Wedges, timber 100 x 50 x 500mm	12
Wedges, step/blocks 500mm x 200mm	4
Wedges, timber assorted sizes (e.g. wheel chocks and shims)	12

Cribbing – Timber Alternate	
Timber blocks 100x100x500 taped handle	12
Timber blocks 100x50x 300 taped handle	6
Timber wedge 100x100x 450 taped handle	6
Timber wedge 100x50x250 taped handle	6

Cribbing – Plastic Recycled	
Step blocks, recycled plastic	4
Blocks, lockable, recycled plastic	6
Wedges, recycled plastic, 75mm wide	4
Wedges, recycled plastic, 150mm wide	4

General	
Crates or boxes for transport of cribbing (e.g. milk crate style)	4
Tension buttress kit for side stabilisation (e.g. Acro prop, shackles and straps; or Stabfast or Holton Foot or Side Stabiliser)	2
Ratchet straps, 25mm x 6m (min) with Hooks	2
Ratchet straps, 50mmx 6m (min) with Hooks	2

High Pressure Airbag & Airline	

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Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 16 of 18

Review By: December 2011

ITEM	QTY
Equipment	
Air hoses (10m)	2
Air impact chisel	1
Air impact wrench (c/w sockets)	1
Air supply (cylinders only)	2
High pressure lifting air bag (min. 20t) with regulators, relief valves, hoses and controls to run 2 bags	2

Winch Set Complete	
Cable wire winch (Tirfor type) rated 1.5T vertical / 2.5T horizontal	1

Strop or Sling Kit	
Strop or sling kit 6m	2
Strop or sling kit 3m	1
2.5m strop/sling (triple lined) optional	1
D Shackles rated to above winch capacity	6

Casualty Treatment Equipment	
Space/emergency blankets, patient care only (not wool or cotton)	1
Extrication device (e.g. KED or similar)	1

ITEM	QTY
First aid kit as per attached list	1
Oxygen therapy equipment	1
Patient protection, various sizes, hard	1 set
Patient protection, various sizes, flexible	1 set
Patient protection, various sizes, soft	1 set
Stretcher, scoop style	1
Rescue board – full length (e.g. timber / plastic / fibreglass)	1
Rescue board – half length (e.g. timber / plastic / fibreglass)	1
Cervical collars (multi fit or full set of sizes)	1
Ear muffs for casualty hearing Protection	1
Safety glasses for casualty protection	1 pair

In addition to the above a stock of consumables needs to be available to replenish supplies of:

- Bi-metal hacksaw blades – 2 per team
- Reciprocating saw blades – 2 per team
- Air cylinders
- Medical oxygen cylinders (one per team) & therapy masks (two per team) plus spares
- Spill absorbent material (kitty litter)
- First aid supplies to include:
 - 2 oxygen mask per team (e.g. 24 teams = 48 masks + 6 spares)
 - Bandages and dressings per scenario
 - One cervical collar per teams (adjustable size or sets)
 - Disposable cardboard splints – 1 small & 1 medium per team
- Duct tape

Powered double acting hydraulic tools will be added to each of the pits based on the class of scenario refer to rule 12 – ARRO Challenge Rules.

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Original Issue: September 1996

Document Owner: Challenge Coordinator

Current Version: April 2011

Page 17 of 18

Review By: December 2011

Appendix 2 – Recommended Pit Medical Equipment List:

ITEM	SIZE	QUANTITY IN KIT	SPARES
Bandages	2.5 cm	3	1 per team
	5 cm	4	3 per team
Crepe bandages	10 cm	6	2 per team
	15 cm	2	1 per team
All purpose shears		1	
Eye pads		4	
Sodium Chloride	30 ml	6	
Leukofix		1	
Sterile dressings	6 cm x 8.5 cm	2	
Safety pins		10	
Dressings	20 cm x 75 cm	1	
	10 cm x 10 cm	4	3 per team
	20 cm x 20 cm	1	3 per team
Burn dressings	10 cm x 10 cm	2	
Triangular bandage		4	1 per team
Emergency blanket		1	
Stethoscope		1	
Blood pressure cuff		1	

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Current Version: April 2011

Page 18 of 18

Review By: December 2011