

# NSW RURAL FIRE SERVICE



## FIREFIGHTERS' POCKET BOOK

December 2010



NSW Rural Fire Service Firefighters' Pocket Book written and produced by Chief Superintendent Alan Brinkworth, AFSM Manager State Operations.

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# Foreword

In the field there are a number of important things all firefighters need to know; from basic safety to vehicle and officer recognition. This pocket book is designed to provide you with a fast, easy reference guide to these and other important facts you will need at your fingertips.

Whilst some of the information contained is in summary form and is 'rule of thumb', it is sufficient for you to make operational decisions. It has been developed by firefighters, for firefighters and is concise, relevant and rugged enough for you to take with you anywhere.

I would encourage you to keep this pocket book with you at all times; you never know when the information may be of use to you and your crew mates.

The pocket book is also available on the RFS intranet and MyRFS.

This pocket book will also be reviewed periodically, so any suggestions for improvements should be forwarded to [pocket.book@rfs.nsw.gov.au](mailto:pocket.book@rfs.nsw.gov.au)

**Shane Fitzsimmons, AFSM**  
**Commissioner**

# Index 1

AAR .....	4	Bottom Bind .....	101
Accident .....	35,98,117,118	Bridge Weight Restrictions .....	18
Acronyms .....	1,2,3	Briefing .....	4
Advice .....	61,62	Building Material .....	22
After Action Review .....	4	Bulk Water .....	176
Agency Liaison Channels .....	123,127,128	Bulldozers .....	72
Aircraft Communication .....	74,77	Bundle Conductors .....	40
Aircraft Hand Signals .....	82-84	Burning Buildings and Building Material .....	22
Aircraft Recognition .....	78-81	Burning Garbage and Refuse .....	24
Aircraft Safety .....	76	Burns .....	46
Aircraft Water Bombing Safety .....	74	Bush Fire .....	6,35,68
Air Operations .....	113,172	Bush Fire Alert Messages .....	61,62
Airway Obstruction .....	43	Bush Fire Classification .....	57
Alert Messages .....	61,62	Bush Fire Danger Period .....	23,24
Alphabet .....	119	Bush Fire Definitions .....	68-70
Alpine Butterfly .....	99,100	Bush Fire Mapping Symbols .....	107,108
Anchor Point .....	99,100	Bush Fire Personal Protective Clothing .....	8
Ant Bite .....	48	Bush Fire Status .....	57
Approach .....	2,31,35	Bush Fire Survival if in a Building .....	11
Area Conversion .....	177	Bush Fire Survival if in a Vehicle .....	9
ARSO .....	2	Bush Fire Survival if on Foot .....	10
Assessing Fine Fuel Loads .....	67	CABA .....	54,173
Assessing Slope .....	71	CABA BACO Board .....	55
Australian Road Rules 1999 .....	14-16	Callsigns .....	77
Authority Card .....	19	Carabiner .....	100
Authority of Officers .....	19-21	Category 1,2,6,7,9, Pumper .....	174,175
Aviation Callsigns .....	77	CB Radio .....	123
Aviation Foam .....	73	Centipede Bite .....	48
Backburning .....	70	Chainsaw Operation .....	101,102
Backstop Defence .....	70	Changeovers .....	4
BACO Board .....	55	Channel Allocation .....	122,123,125-128
Backdraught .....	56	Chaplaincy .....	152,173
Beaufort Scale .....	153	Checking Station .....	15
Bee Sting .....	48	Choking .....	43
Bleeding .....	47	CISS .....	151,173
Blue Bottle Stings .....	48	Classes of Fire .....	53,57,163
Blue Ringed Octopus .....	47	Class A Foam .....	73,91
Booster Valve .....	97	Class B Foam .....	91
Brassards .....	171-173	Cold Front .....	157

# Index 2

Colour Codes	50-52,88,120	DTG – Date Time Group	2
Combat Agencies	163,164	Electricity	35-42
Combat Agency Functions	164	Ember Defence	70
Communication	104	Emergency	163
Communications Colour Codes	120	Emergency Alert	61
Communications Definitions	121	Emergency Procedure, Bush or Structure Fire	6
Communications Network Motorola, Simoco, Tait and Icom	122,123	Emergency Signals	75
Communications with Aircraft	74,124	Emergency Warning	61,62
Community Liaison	113,171	Epaulettes	165,166
Compressed Air Breathing Apparatus	54,55	Estimating Degree of Slope	71
Cone Shell	47	Estimating Fuel Loads	67
Construction Rates	72	Estimating Height of a Tree	105
Conversion Table	177	Estimating Weight of a Tree	105
Convoy Driving	116	Explosive Devices & Suspicious Packages	28
Cooking Fires	24	Extinguishers	53
Cylinders	54	Fatigue	5
CPR	43	Fatigue Regulations	16
Crimes Act 1900	16	FDI/FDR	58-60
Critical Incident Support Services (CISS)	151,173	Finding North/South	110
Cross Cutting	101,102	Fire Area Map	65
Curing Guide	63	Fire Behaviour	59,60,62
Dangerous Goods Classes and Divisions	30	Fire Bombing Safety	74
Dangerous Trees	103,104	Fire Breaks	23
Date Time Group	2	Fire Classification	53,57
Dead Man Zone	6	Fire Danger Index and Rating	58-61
Decontamination Model and Layout	26,27	Fire Danger Meter	58,59
Dedicated Water Supply	93	Fire Extinguishers	53
Defensive Strategy	70	Firefighter Skills	85,86
Definitions	68-70,121	Fireground Information	61
Dehydration	12	Fireground Radio	123-126,141,142,147,148
Direct Attack	69	Fireground Safety	103
Displan	163,164	Fireground Signs	104
Divisions	113,114	Fire Investigation and Scene Preservation	49
Downburst	159	Fire Service Booster Valve	97
Dozers	72	Fire Status	57
DRABCDE	43-48	Fires Dangerous to Buildings	23
Draughting	96	Fires Legal and Illegal	22-24
Driving	14-17,116	First Aid	43-48
		Fish Stings	48

# Index 3

Fixed Wing Bombers	81	Heat Stress	45
Flame Height	60	Heat Stroke	46
Flashover	56	Height of a Tree	105
Flight Safety	77	Helicopters	78-80
Foam Application	53,73,91,92	Helicopter Marshalling	82-84
Foam for Aviation	73	Helicopter Safety	76
Forest Fire Danger Meter	60	Helmet Colours	7,8,152,160,167-170
Fractures	47	High Pressure	154
Frequencies	122,123,125-128	High Voltage	38-40
Friction Loss	95	Hoses and Pressures	95,96
Fronts	157	Hydrant Inspection	98
FTASC	3	Hydrant Markers	93,98
Fuel Assessment	64,67	Hydration	12
Fuel Containers	50-52	ICON	62,113
Fuel Moisture	59,64	ICS	112-114
Fuel Tags	50,51	Illegal and Legal Fires	22-24
Fuel Tanker Callsigns	77	Impact Information	62
Funnel Web Bite	47	I'M SAFE	1
Garbage Burning	24	Incident Control System (ICS)	112-114
Government Radio Network	122	Incident Controller	112-114,171
GPS	106	Incident Management Team (IMT)	113,114,171,172
Graders	72	Incident Updates	61,62
Grassland Curing Guide	63	Indirect Attack	69
Grid and Magnetic North	109	INSARAG	33,34
Grid Reference	106	Interface Defensive Strategy	70
GRN	122	Interstate Deployment	5
Ground to Air Signals	75	Interstate Driving	16
Guiding Vehicle	89,90	Jelly Fish	48
Hand Signals	82-84,89,90,94	Jerry Cans	50-52
Hand Tool Construction	72	LACES	1
Harpoon	100	Land Clearance	23
Hazardous Materials	31,32	Large Incident	112
Hazard Reduction	22,70,98	Lateral Position	44
Hazardous Trees	103,104	Leaf Test	64
HazChem Emergency Action Code	25,26	Legal and Illegal Fires	22-24
HazChem Scale for Fire or Spillage	25	Liaison Channels	123,127,128
HazMat/Terrorism Guidelines	28,31,32	Line Defence	70
Heart Attack	44	Local Government Areas	66
Heat Exhaustion	45		

# Index 4

Log Books (Work Diaries) .....	16	Operations Chart .....	162
Logistics Officer .....	113,114,171	Operations Officer .....	113,114,171
Low Pressure .....	155,156	Organisational Chart .....	161
Low Voltage .....	38-40	Parallel Attack .....	69
Machine Construction .....	72	Parts of a Bush Fire .....	68
Macroburst .....	159	Permit Conditions .....	24
Magnetic North .....	109	Personal Protective Clothing .....	7,8
Management Support Officer .....	113	Phonetic Alphabet .....	119
Map (State) .....	65,111	Placards .....	29
Map Marking Guide .....	108	Planning Officer .....	113,114,171
Mapping Symbols .....	107,108	Pole Top Fires .....	37
Map Referencing .....	106	Powers of Officers .....	19-21
Map Scales .....	119	PPC .....	7,8
Marshalling Signals .....	82-84	Prepare, Act, Survive .....	61
Measuring Height of a Tree .....	105	Pressures .....	95,96
Measuring Weight of a Tree .....	105	Prescribed Burning .....	70
Mechanical Breakdown .....	98	Private Mobile Radio .....	122
Media .....	113,160,170-172	Protection from Liability .....	20
Medium Incident .....	112	Public Liaison Officer .....	113,171
Microburst .....	159	Pumper .....	175
Moisture Content .....	59,64	Pump Pressure .....	95
Motor Vehicle Fire .....	49	Quenchmaster .....	91
Motorola XTL 5000 O3 .....	122,129,130	Radio Liaison Channels .....	123,127,128
Motorola XTL 5000 O5 .....	122,131,132	Radio Networks .....	122-126
Motorola XTS 5000 .....	122,133,134	Radio Priority Code .....	120
Motorola XTS 2500 .....	122,135,136	Radio Report .....	13
Motorola XTL 2500 .....	122,137,138	Radio XTL 5000 O3 .....	122,129,130
Motorola Zones .....	125-128,130,132,134,136,138	Radio XTL 5000 O5 .....	122,131,132
Mud Driving .....	17	Radio XTS 5000 .....	122,133,134
MVA .....	35,98,117,118	Radio XTS 2500 .....	122,135,136
Networks .....	122-126	Radio XTL 2500 .....	122,137,138
No Burn Days .....	22	Radio Zones .....	125-128,130,132,134,136,138
No Go Zone .....	36,37,41,42	Ranking .....	165,166
North .....	109,110	Rate of Spread .....	60,62
Nozzle Pressures .....	36,95,96	Ratings .....	58-62
NSW Fire Areas .....	65,66	Rations .....	5,113
Obstructed Airway .....	43	Recovery Position .....	44
Offensive Strategy .....	69	Recycled Water Supply .....	93
Offensive Personal Protective Clothing .....	8	Redback Spider Bite .....	48

# Index 5

Refuse Burning .....	24	Service Standard .....	19,21,160
Regions .....	111,161,162	Severe Bleeding .....	47
Reporting Times .....	62	Severed Parts .....	47
Resource Status .....	85,86	SEWS .....	61
Responding .....	14,15	Shift Lengths .....	5
Response Team Coordinator .....	115,116,172	Shock .....	46
Returning after an Incident .....	116	Side Bind .....	102
Reversing Vehicles .....	89,90	Signals .....	75,82-84,89,90,94
Ridge .....	154	Signs .....	104
Road Transport (Safety and Traffic Management) Act 1999 .....	16	Simoco SRM 9022 PMR (Red) .....	139,140
Road Weight Restrictions .....	18	Simoco SRM 9022 Fireground (Blue) .....	141,142
Rocker .....	100	Simoco SRM 9022 Mid Band (Yellow) .....	143,144
Roof Identification .....	87	Simple Tree Felling .....	102
Roof Safety System .....	99	Single Resource T Card .....	86
RRAPID .....	2	Single Wire Earth Return .....	39
Rural Fires Act, September 1997 .....	19,20,22-24	SitRep/Situation Report .....	13
Rural Fire Service Chart .....	161,162	Skills .....	85
S44 Declaration .....	57	Slope .....	71
Safe Driving .....	14-17	Small Incident .....	112
Safe Working on Roads .....	98	SMEACS .....	3
Safe Working on Roofs .....	99,100	Snake and Spider Bites .....	47,48
Safety .....	116	South .....	110
Safety Advisor .....	113,171	Spacing of Vehicles .....	116
Safety Around Aircraft .....	76	Spider Bites .....	47,48
Safety Distance .....	72	Spotting Distance .....	60
Safety Line .....	99,100	Stable Atmosphere .....	158
Safety Vehicle .....	116	Standard Emergency Warning Signal .....	61
Safety Vests .....	98,173	Staging Area .....	113,114,172
Sand Driving .....	17	State Assistance .....	115,172
Scales .....	119	State Emergency and Rescue Management Act 1989 .....	163,164
Scarf Cut .....	102	Static Water Supply (SWS) .....	93
Scene Preservation .....	49	State Map .....	65,111
Scorpion Bite .....	48	Step Potential .....	41
Sectorising a Building .....	33,56	Storm Damage .....	36,98
Sectors .....	112-114,171	Strategic Network .....	122,124-126
Seizure .....	48	Strike Team .....	5,86,111,113,114,170
SERM Act .....	163,164	Stroke .....	45
Service Vehicle Involved in an Accident .....	117,118	Structure Fires .....	6,35,49,55,56



# Index 6

Structural Personal Protective Clothing	8	Vehicle Accident	35,98,117,118
Substation	36	Vehicle Categories	88,174-176
Summer Heatwave	159	Vehicle Checking Stations	15
Survival if in a Building	11	Vehicle Placards	29
Survival if in a Vehicle	9	Vehicle Safety	116
Survival if on Foot	10	Very Large Incident	113
Suspicious Packages	28	Voltagés	36,38-41
SWER	39	Volume of Water	96
SWS Marker	93	Warm Front	157
Tabards and Brassards	98,115,151,152,171-173	Warnings	61,62
Tactical Aircraft Callsigns	77	Wasp Sting	48
Tags Fuel	50,51	Watch and Act	61,62
Tait TM 9154 PMR (Red)	145,146	Water	5,113
Tait TM 9154 Fireground (Blue)	147,148	Water Bombing Safety	74
Tait TM 9154 Mid Band (Yellow)	149,150	Water Driving	17
Tanker Categories	88,174-176	Water Supply Hand Signals	94
Tanker Protection System	95	Water Supply Hydrants	93
Task Force	115,172	Water Use	20
T Card Colour Coding Identification	88	Weather	153-159
T Card Resource Status	85	Weight of a Tree	105
T Card Single Resource	86,115	Weight Restrictions	18
T Card Strike Team	87	Winds	59,153-159
Terrorism Guidelines	28,31,32	Wind Scale	153
Time to Impact	62	Wind Strength	153,156
Toban Areas	65,66	Work Diaries	16
Toban Exemptions	24	Working on Roads	98
Top Bind	101	Working on Roofs	99,100
Total Fire Bans and Exemptions	24	XTL 5000 03	122,129,130
Traffic Rules	15,16	XTL 5000 05	122,131,132
Trail Construction Rates	72	XTS 5000	122,133,134
Transmission Lines	42	XTS 2500	122,135,136
Tree Felling	102	XTL 2500	122,137,138
Trough	155	Zone Radios	125-128,130,132,134,136,138
Two Piece Uniform	7		
Types of Fire	53,57		
Updates	62		
Unstable Atmosphere	158		
Urine Chart	12		
USAR Symbols	33,34		

## I'M SAFE – should I respond to an incident?

<b>Illness or Injury</b>	Am I sufficiently <b>recovered</b> ?
<b>Medication</b>	Am I under the effect of any <b>medication</b> ?
<b>Stress</b>	Am I under severe <b>stress</b> from work or personal worries?
<b>Alcohol or Drugs</b>	Am I <b>under the influence</b> or badly hung over?
<b>Fatigue</b>	Am I <b>tired</b> and not adequately rested?
<b>Expertise</b>	Am I currently <b>competent</b> ?

## LACES

### Firefighter

<b>Lookouts</b>	Everybody looks out for everybody else
<b>Awareness</b>	Everybody is aware of the current and anticipated behaviour of the fire and other incident hazards and precautions
<b>Communications</b>	Everybody speaks up about what is happening and their concerns at the incident and everybody listens
<b>Escape Route</b>	Everybody has an 'out' planned and agreed
<b>Safety Refuge</b>	Everybody helps everybody to survive. Everybody supports the decision to get clear of a hazard

### Crew Leader

<b>Lookouts</b>	Assign a "lookout" to a safe vantage point in communication with crew leader if appropriate
<b>Awareness</b>	Terrain, weather, fire behaviour, the task and nearby activities
<b>Communications</b>	Maintain suitable radio or other contact
<b>Escape Route</b>	Suitable escape route/s checked and known by all crew
<b>Safety Refuge</b>	Suitable, large enough, close enough and free of hazards

# RRAPID

<b>Reaction</b>	Mobilise resources to incident or staging area
<b>Reconnaissance</b>	Collect data about the situation and resources
<b>Appreciation</b>	Choose a course of action based on the likely scenario, best and worst case scenario
<b>Plan</b>	Develop and document a plan based on your chosen course of action
<b>Issue Orders</b>	Use the SMEACS format
<b>Deployment</b>	Execute and monitor deployment to the plan

# ARSO – your priorities at an incident

<b>Arrival &amp; Approach</b>	What you and your crew do as you arrive at a particular type of fire or incident including your own safety
<b>Rescue</b>	What you and your crew do to safely protect people at the fire or incident
<b>Suppression</b>	What you and your crew do to safely protect items of economic, environmental, cultural or personal value
<b>Overhaul</b>	What you and your crew do to safely help people and the area affected by the fire or incident to return to normal

# DTG ~ Date Time Group

**Abbreviated Date Time Group** uses two digits for the date and 24 hour time

Example: 10:51 on 1 October 2005 would be **01 1051**

**Full Date Time Group** uses date, time, month and year

Example: 10:51 on 26 January 2005 would be **26 1051 JAN 05**

## FTASC – Size Up and SitReps (reporting up the line)

<b>Fire</b>	<p><b>Type of Incident</b> – Bush, grass, structure, other</p> <p><b>Location</b> – address and what is it doing</p> <p><b>Future Location</b> – What will it impact and when</p>
<b>Threats</b>	<p><b>What is it threatening</b> – People, property, environment</p> <p><b>Future Threats</b> – what and when</p>
<b>Action</b>	<p><b>What do we need to do now</b> – Offensive or defensive</p> <p><b>Future Action</b> – What, where and when, offensive or defensive</p>
<b>Support</b>	<p><b>What is needed now</b> – Emergency warnings, reinforcements and/or supplies – how much, where and when needed</p> <p><b>Future Support</b> – What will be needed, where and when</p>
<b>Command Control Comms</b>	<p><b>Incident Control System</b></p> <p><b>Who is in Control</b>, do we need divisions or sectors</p> <p><b>Which channels</b> are to be used for tactical and command networks</p>

## SMEACS – a briefing sequence

<b>Situation</b>	Current and Predicted – incident details, what is at risk, topography, weather, fire behaviour, hazard risks, resources deployed, en route or available
<b>Mission</b>	Objectives – overall or specific, who/what is savable, where to stop fire/incident
<b>Execution</b>	Strategy and Tactics – task allocation, timing and safety considerations
<b>Administration</b>	Assistance and Logistics – what support is needed, staging areas, personnel, fuel, food, water, facilities, information, where/when/quantity
<b>Command</b>	Command, Control and Communications – organisation, divisions, sectors, chain of command, communications plan, channels and procedures
<b>Safety</b>	Risk assessment, safety hazards and precautions, LACES checklist, first aid, medical and medevac

# Briefing – at large incidents

## Stage Management of Briefing

- Identify the various leaders in command
- Brief all relevant key personnel
- Make sure that everyone can see and hear
- State that questions can be asked at the end
- Effectively manage interruptions
- Hand out relevant part/s of Incident Action Plan
- Hand out map/s
- **Be brief, accurate and confident**
- Brief keeping strictly to the SMEACS format

## Changeovers

Changeovers should revolve around the fire behaviour and the timing of the strategies to be implemented.

- Incident Management Team establishes the next shift's Incident Action Plan, which they implement.
- Operations Officer briefs and changes Divisional Commanders.
- Divisional Commanders brief and change Sector Commanders.
- Sector Commanders brief and change Crew Leaders.
- Crew Leaders brief their Crews.

Once the fireground organisation is complete, stagger the following briefings and changeovers:

- Planning Team, Logistics Team, Operations Team and Incident Controller.

## After Action Review (AAR)

- What did we set out to do?
- What actually happened?
- Why did it happen?
- What are we going to do next time?

# Fatigue

Fatigue is everyone's responsibility and must be managed by all when attending any fire or emergency incident. (Refer to I'M SAFE on page 1)

It also needs to be understood that there is a personal responsibility to maintain a suitable level of health and fitness to carry out tasks allocated.

Fatigue management identifies the need for appropriate breaks, particularly in the first 24 hours of an incident, managing shift lengths and shift times and appropriate travel times.

Advise your Officer in Charge if any of the following will affect your performance:

- Unwell, injury, medication, stress, alcohol or drugs.
- You have worked long hours prior to "call-out".
- You become unreasonably fatigued or unfit at the incident.

Fatigue can cause a vast range of other physical, mental and emotional symptoms including:

- Chronic tiredness or sleepiness
- Headache
- Dizziness
- Sore or aching muscles
- Muscle weakness
- Slowed reflexes and responses
- Moodiness, such as irritability
- Impaired hand to eye coordination
- Appetite loss
- Reduced immune system function
- Blurry vision
- Short-term memory problems
- Poor concentration
- Hallucinations
- Reduced ability to pay attention to the situation at hand
- Low motivation
- Impaired decision making and judgement**

**Note: All tankers should have sufficient non-perishable rations and water for a 24 hour period.**

# Dead Man Zone

Firefighters engaged in parallel or indirect attack may be working in the “**dead man zone**” and must appreciate the time and space required to find a safe refuge. Preferably work from the burnt area.

**The distance (metres) a line of fire will travel in 5 minutes**

Forest Fire Danger Index (FDI)	Slope		
	Level Ground	10o (Up) Slope	20o (Up) Slope
20	87	174	348
40	170	340	680
60	258	510	1020
80	338	676	1352

**Based on 12.5 tonnes per hectare – distances may be greater in heavier fuel loads**

## Emergency Procedure (Bush Fire)

If a danger to the crew is identified:

- Warn those in danger
- Notify the Officer in Charge immediately
- Activate a standard emergency signal
- Activate preplanned emergency action

## Emergency Procedure (Structure Fire)

Emergency Signal

- Repeated whistle blasts
- Intermittent blasts of the siren at 5 second intervals
- Repeated tugs on a guideline or hoseline
- “Emergency” radio message
- Crew to evacuate the area and report to Breathing Apparatus Control Officer (BACO)

# Personal Protective Clothing (PPC) 1

Garments must not be modified or changed

**Bush fire personal protective clothing to be worn:**

- helmet, correctly marked, chin strap and neck protector
- non synthetic undergarments
- two piece uniform
- boots
- non synthetic socks

**To be carried and used as required:**

- Winter Yellow Jacket or Black Woollen Jacket
- smoke goggles
- smoke mask or cloth
- bushfire flash hood
- gloves
- water bottle

**It is advisable to carry:**

- personal first aid kit, medication and sunscreen
- matches
- knife
- compass
- small torch
- authority card
- pocket book, note book and pen
- personal requirements

**Note: New jackets will have epaulettes and two pockets. Name, rank, qualification/s and brigade name are to be sewn onto the pocket flaps.**





# Personal Protective Clothing (PPC) 2

Garments must not be modified or changed

Offensive structural personal protective clothing:

- helmet, correctly marked, chin strap and neck protector
- structural flash hood
- non synthetic undergarments
- trousers of two piece uniform and shirt
- offensive structural trousers and jacket
- gloves
- structural boots
- non synthetic socks
- personal guideline



# Bush Fire Survival if in a vehicle

- **Full personal protective clothing (PPC) correctly worn and fastened**
- Be aware of your surroundings, note areas of little vegetation, natural shelter places, escape routes and refuge areas
- Be aware of current weather conditions and fire behaviour
- **Assess the risk of fire overrun**
- **Don't put yourself in this position in the first place – anticipate and avoid hazardous locations – use the LACES checklist**
- Don't panic or cause others to panic – **Warn others** who may be in immediate danger
- **Send an emergency radio call giving your details, callsign, roof ID number and location**
- Don't drive through dense smoke, you may have an accident or drive off the road
- **Park in open space, bare or burnt ground or in an area of least vegetation, furthest from the path of the fire**
- **Stay in your vehicle and operate protective equipment (spray bars)**
- **Turn on the headlights, emergency lights and hazard warning lights, leave engine running and sound horn**
- Petrol motors may stop working due to vapour lock
- **Close windows and air vents and turn air conditioning on to recycle**
- **Shelter under a coat or blanket to protect your body from the radiant heat and lie down as close as possible to the floor**
- When the fire has passed
  - if vehicle is still safe, remain in the vehicle
  - if vehicle is hazardous remain together as a crew and seek refuge in a safer location until conditions cool
- The air closest to the ground is the freshest
- Coats or blankets should be taken and worn to provide supplementary protection against radiated heat from the burnt out ground
- Don't touch the interior or exterior parts (particularly metal) of the vehicle, it will be very hot and may still be burning

# Bush Fire Survival if on foot

- **Full personal protective clothing (PPC) correctly worn and fastened**
- Be aware of your surroundings, note areas of little vegetation, natural shelter places, escape routes and refuge areas
- Be aware of current weather conditions and fire behaviour
- **Assess the risk of fire overrun**
- **Don't put yourself in this position in the first place – anticipate and avoid hazardous locations – use the LACES checklist**
  
- Don't panic or cause others to panic
- Don't run through dense smoke, you may run into something, fall down or over a cliff
- Don't run through a fire which exceeds 1.5 metres high x 1.5 to 3 metres deep
- Don't try to outrun a fire uphill, for each 10° of slope the fire roughly doubles in the rate of forward spread, preferably move across the slope out of the path of the fire
- **Seek bare or burnt ground or an area of little vegetation**
- **Seek shelter by using a track, culvert, drain, wheel rut, cave, rock ledge, large rock or fallen tree**
- Check that there are no air spaces under rocks, fallen trees, etc. which would allow the fire to be channelled underneath
- Shelter may be sought in large dams, rivers and streams
- **Avoid elevated water tanks**
- If time permits, clear away or burn as much flammable material as possible
- Shelter on the side furthest from the path of the fire
- Lie face down
- Dig into the ground if possible, cover your body as much as possible to protect against the radiant heat
- A cloth or handkerchief, placed over your mouth and nose gives further protection
- Limit breathing as much as possible
- The air closest to the ground is the freshest

# Bush Fire Survival if in a building

- **Full personal protective clothing (PPC) correctly worn and fastened**
- Be aware of your surroundings
- Be aware of current weather conditions and fire behaviour
- A substantial building can offer the best shelter during the passage of a bush fire
- **Bush Fire Coordinating Committee policy recommends that capable persons should not be evacuated from properly prepared dwellings**
- **Last minute evacuations should be avoided**
  
- Don't panic or cause others to panic
- Know the whereabouts of all crew and/or family and ensure their safety
- Fill bath and sinks with water and strategically place static supplies of water externally (for firefighting)
- Ensure gutters are clear, then block and fill with water
- **Turn off electrical and gas systems**
- Close all doors and windows and seal gaps with towels or similar material
- If possible have a battery powered radio and torch in working order
- If time permits, clear away from around the building as much flammable material as possible
- Stay outside for as long as possible to extinguish small outbreaks
- Shelter in the house away from the approaching fire
- Once the fire has passed, move outside and extinguish any hot spots and check the building for any signs of fire, especially the roof and under the house

# Urine Chart

## HOW DEHYDRATED ARE YOU?

For frontline fire fighting, at least 1 litre of fluid should be taken every hour

### DARK YELLOW

#### Highly Dehydrated

- Drink a large bottle of water immediately!

### BRIGHT YELLOW

#### You are still seriously dehydrated

- Drinking more now will make you feel a lot better

### YELLOW

#### Moderately dehydrated

- You lose fluid on a regular basis throughout the day
- Drink more water to get hydrated

### LIGHT YELLOW

#### Almost there

- Get some more water in your system
- Stay hydrated and healthy!

### CLEAR

#### Great job

- Now don't let yourself get dehydrated
- Drink at least 8-12 large glasses of water throughout the day

## CAFFEINATED AND SUGARY DRINKS AND ALCOHOL DEHYDRATE – LIMIT YOUR CONSUMPTION

You can have a sport drink to supplement electrolytes. They should be taken at the ratio of 1 sports drink to 10 equivalents of water.

Approved by the NSW Ambulance Service

# Radio Reports

## When responding:

- Callsign, Crew strength and Officer in Charge (OIC)

## Incident Controller

- Incident Controller and the name of the incident to be nominated and communicated to all at the incident and Fire Com

## First arriving appliance

- Callsign
- Priority code (red, blue)
- Give or confirm location, map name and grid reference (see page 106)
- Give or confirm type of incident (bush, grass, structure, AFA, MVA, false alarm, etc.)
- Advise any current or future threats
- Advise investigating, commencing attack, standing by, etc.
- Additional firefighting or logistics resources required

## Later arriving units to communicate with Incident Controller on approach First arriving appliance also provides detailed SitRep on arrival and as the situation changes or as additional information is known, when major benchmarks have been achieved or at least every 30 minutes

- Fire status (going, being controlled, contained, patrol, out)
- Fire behaviour and weather information
- Fuel type, fuel load and topography
- Change of location
- For structure fire – what is involved and what are exposures, etc.
- For MVA – what is involved, traffic situation, road closures, etc.
- Communicate any change of Incident Controller
- Other Agencies in attendance

## Further Information

- Any injuries, fatalities, persons trapped, persons missing, persons evacuated
- Any person or asset under immediate threat
- Any person or asset under longer term threat (give timeframe)
- Objectives, strategy and tactics
- Other services required (rescue, NSWFB for HazMat, Police, Ambulance, Electricity Authority, heavy plant, aircraft, etc.)
- Any hazard or safety warnings
- Any suspicious circumstances

# Safe Driving 1

## Response

- All private vehicles are to observe all Australian Road Rules 1999, NSW Acts and Regulations at all times
- **If you have an accident en-route you have defeated the purpose for which you were responded**
- Drivers to have an appropriate current driving licence
- The driver of any RFS vehicle is to comply with the legislated prescribed concentration of alcohol (PCA)
- **Respond** means to drive urgently, but safely, using lights and sirens where appropriate (lights are to be used but siren may not be appropriate when responding in remote areas or on private lands)

**Note:** A driver must give way to emergency vehicles that display flashing blue or red lights or sound an alarm

A driver must not move into the path of emergency vehicles and must move out of the path of emergency vehicles that display flashing blue or red lights or sound an alarm

- **Treat all other road users as though they have not seen you**
- Normally RFS vehicles respond for the initial response
- RFS vehicles called out later to assist are to proceed (not respond) to the incident unless specifically requested by the district/team/zone manager, Incident Controller or other person with delegated authority
- Driver and crew to wear seat belts at all times unless working on the fireground (eg. during grassland fire fighting from the rear of tankers)
- **Ensure that you do not cause other road users to react and cause an accident – you will be responsible**
- Ensure that your vehicle, anything attached to it does not impact with any other vehicle, pedestrian or object

# Safe Driving 2

## Traffic Rules

- Rule 306 of the Australian Road Rules 1999, provides exemptions for drivers of emergency vehicles provided that “reasonable” care is taken, however, RFS operational protocols require you to:

### **Come to a complete stop and do not to proceed until safe at:**

- Red traffic lights
- Stop sign
- Unguarded level crossing (do not enter if a train is approaching)
- Blind intersection
- Intersection where traffic in some lanes is not visible
- Intersection where RFS vehicle does not have right of way

### **Slow down to a safe speed, which will allow RFS vehicle to quickly stop if required at:**

- Give way sign
- Pedestrian crossing (unoccupied)
- Bus set down
- In the vicinity of schools when students are arriving or leaving

### **Comply with the following:**

- School zone speed limit
- Speed limit when passing school bus displaying 40 km/h illuminated sign
- Stop at children’s crossing
- Give way at pedestrian crossing

## Vehicle Checking Stations

- All vehicles over 8 tonnes to enter vehicle checking stations (except when responding)



# Safe Driving 3

## Fatigue Regulations

The Rural Fire Service has an exemption for members driving regulated heavy emergency vehicles during emergency operations, however, this must not present an unreasonable danger to the vehicle, crew or other road users.

## Work Diaries

The Rural Fire Service is exempt from maintaining "Work Diaries".

## Driving Interstate

Victoria, Queensland and South Australia also provide an exemption from work, rest limits and "Work Diaries" for emergency operations, however, this does not include return journeys.

## Road Transport (Safety and Traffic Management) Act 1999

No exemptions exist for drivers in regard to the provisions of the Road Transport Act 1999 which include:

- Negligent, furious or reckless driving
- Negligent driving causing death or grievous bodily harm
- Driving at a speed or in a manner dangerous
- Menacing driving

## Crimes Act 1900

No exemptions exist for drivers in regard to the provisions of the Crimes Act which include:

- Predatory driving
- Dangerous driving or aggravated dangerous driving occasioning death or grievous bodily harm
- Injuries by furious driving
- Causing grievous bodily harm

# Safe Driving 4 (Driving Techniques)

## Driving on loose, rough or steep surfaces

- Select 4WD and the appropriate gear for the hazard.
- Speed to be appropriate for the conditions.
- Tackle hazard as square on as possible.
- DON'T depress the clutch whilst traversing steep terrain.
- Keep a steady pace and avoid wheel spin or slip.

## Driving in water

- Inspect crossing for depth, hazards and best route.
- Select 4WD and the appropriate gear for the hazard.
- Select entry and exit points – consider angle.
- Once in water, maintain momentum and create a bow wave.
- DON'T stop or depress the clutch.
- Remove seat belts.
- Dry brakes after exiting.

## Driving in mud

- Reduce tyre pressures slightly to improve traction.
- Walk and inspect the intended route for depth and hazards prior to entering.
- Check entry and exit – consider angle.
- Select 4WD and the appropriate gear for the hazard.
- Use higher gear to minimise wheel spin.
- Avoid excessive speed, as the vehicle may slide sideways.
- Maintain momentum.
- DON'T stop or depress the clutch.
- Dry brakes after exiting.

## Driving on sand

- Reduce tyre pressures to approx 20psi for soft sand.
- Select 4WD and the appropriate gear for the hazard.
- Maintain momentum.
- Smooth steering, no sharp turns.
- Smooth throttle control – avoid wheel spin.
- Smooth brake control – avoid locking wheels.
- If you get stuck, try reversing over your tracks or rock the vehicle back and forth to regain traction.
- Tackle sand dune square on – never drive across the face.

# Weight Restrictions on Roads and Bridges in NSW

- Within NSW, weight restricted roads or bridges are regulated by Local Councils.
- Districts, as part of pre-incident planning, should identify all restricted roads and bridges within their RFD.
- A risk analysis must be undertaken to determine the actual weight restriction and the effect for Brigade access or response.
- Any exemptions by the Local Council should be obtained in writing.

Roads and bridges, that display **“Road Load Limit”** or **“Trucks Prohibited”** or **“Bridge Load Limit”**, provided the sign only displays an indicative tonnage (without a gross load limit) may be traversed:

- in an emergency operation by emergency vehicles
- provided the destination lies on the bridge or the road beyond
- and there is no alternative route



TRUCKS OVER  
4.5 TONNES  
PROHIBITED

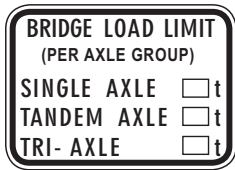


Bridges that are signposted with a designated load limit, **“Gross Vehicle Mass”**:

- Do not traverse if your vehicle exceeds the weight displayed.

Bridges that are signposted with a designated **“Bridge Load Limit (per axle group)”**:

- Only traverse if the axle groups of the vehicle are within the total weight displayed for those axle groups.



# NSW RURAL FIRE SERVICE

Rural Fires Act 1997  
Authority to Enter Premises



The bearer is appointed with the powers conferred under the Rural Fires Act 1997 and is also authorised to enter premises under the Act. (see over for details)

This Authority is issued to:

**Name of Member**

Capt. SDC, DC

Brigade Name

Fire Control Centre / FCD

Zone / Team Name

Expiry Date:

A handwritten signature in black ink, appearing to read 'Shane Fitzsimmons', written over a horizontal line.

Shane Fitzsimmons, AFSM  
NSW RFS Commissioner

## Authority Card Front

This Authority is issued pursuant to Section 29 and 31 of the Rural Fires Act 1997.

The bearer is authorised to:

- Enter any premises without notice in circumstances specified in Service Standard 1.3.2;
- Use reasonable force to enter any premises in the circumstances specified in Service Standard 1.3.2 and;
- While on the premises exercise the powers conferred upon the bearer by sections 22 to 31 of the Rural Fires Act and Service Standard 1.3.2.

This card remains the property of NSW Rural Fire Service, if found, please return to Locked Mail Bag 17, GRANVILLE NSW 2142

## Authority Card Back

# Authority of Officers 1

For the legal text refer to the Rural Fires Act, September 1997 as amended and regulations

- s21** Functions of officers of rural fire brigades
- s22** General powers of rural fire brigades officers and others
- s22A** Power to remove persons or obstacles
- s23** Power to enter premises
- s24** Closure of streets and public places
- s25** Making premises safe
- s26** Use of water and works
  - take and use without any payment any water from any source on any land for the purpose of controlling or suppressing a fire
- s27** Permission of Railcorp, RIC or TIDC required
  - functions may not be exercised in relation to land or property vested in Rail Corporation, Rail Infrastructure Corporation or Transport Infrastructure Development Corporation without the permission of the Authority or Corporation
- s28** Damage to property and the environment
- s29** Notice of entry
- s30** Care to be taken
- s31** Use of force (for gaining entry)
- s32** Authority to enter premises
- s40** Officer in charge may authorise others to exercise functions
- s41** Duty (of Police Service and others) to recognise authority of officers
- s44** Commissioner's responsibility
  - The Commissioner to take charge of bush fire fighting operations and bush fire prevention measures as necessary to control or suppress any bush fire in any part of the State
- s128** Protection from liability

# Authority of Officers 2

Refer to Service Standard 1.3.2 Powers of Officers for further clarification

## Service Standard 1.3.2 clause 2.2

- a. An Officer may enter any premises for the purpose of exercising any function conferred or imposed on the Officer under the Act if reasonable notice is given to the owner or occupier of an intention to enter.
- b. An Officer may enter any premises for the purpose of exercising any function conferred or imposed on the Officer under the Act without notice:
  - i. with the consent of the owner or occupier;
  - ii. if the part of the premises on which entry is made is open to the public; or
  - iii. if entry is required urgently for the purpose of:
    - controlling or suppressing a fire;
    - protecting persons, property or the environment from an existing or imminent danger arising out of:
      - a fire;
      - an incident; or
      - other emergency;
    - determining if there is a fire on or near the premises; or
    - investigating the cause and origin of a fire.
- c. An Officer may use reasonable force to enter premises if he or she is of the opinion:
  - i. that it is necessary to use force to enter premises; and
  - ii. it is necessary for the purpose of:
    - controlling or suppressing a fire;
    - protecting persons, property or the environment from an existing or imminent danger arising out of:
      - a fire;
      - an incident; or
      - other emergency;
    - determining if there is a fire on or near the premises; or
    - investigating the cause and origin of a fire.
- d. If the owner or occupier of any premises
  - i. actively prevents access; and
  - ii. a member of the NSW Police Service is not present force should only be used if the Officer is of the opinion that delay may place a person's safety at risk.
- e. If an Officer uses force to enter premises he or she must, as soon as practicable, inform the Commissioner by reporting the incident to a District Manager or Fire Control Centre.
- f. When entering premises or taking action on premises an Officer must be in possession of an authority card

# Legal and Illegal Fires

Know the requirements and procedures that apply within your district.

The legal requirements are primarily set out in the:

- Rural Fires Act and Regulation (RFA)
- Protection of the Environment Operations Act and Regulation (PEOA)
- Service Standard 4.2.2 - Issue of Permits
- Gazetted Exemptions for Total Fire Bans (Tobans)

Fire permits are not normally required outside the Bush Fire Danger Period (BFDP).

## THROUGHOUT THE YEAR

### Lighting Fires Without Authority

Fires are not permitted outside property boundaries, (i.e. on the footpath or in the gutter) or on land that is not under your control (s100 RFA).

### No Burn Days

The Environment Protection Authority (EPA) may order a "no burn day" (s133 PEOA), which prohibits burning in the open air. If you want to burn, check current special conditions.

### Hazard Reduction

Hazard reductions to be carried out by RFS will have plans and any permission prepared and approved by the District.

Hazard reduction on private land is the responsibility of the owner/occupier, including permissions, permits, issue of notices and the carrying out of the activity.

### Buildings and Building Material

Burning buildings for demolition or old building materials is prohibited unless it complies with the Environment Regulation (check with your District Staff) and a permit has been issued by the Service having jurisdiction (RFS or NSWFB) (Reg 19 RFA).

**National Park, State Forest, Council Land including Roads/Footpaths, etc.**

Burning is not permitted on public land without the written consent of the authority.

**Fires Dangerous to Buildings**

Fires that are dangerous to buildings are prohibited unless a permit is obtained (s88 RFA), the required notices given and compliance with the conditions.

**Other Special Provisions**

Special provisions exist for the burning of sawmill waste (Reg 20), use of spark arresters (Reg 21) and other safety requirements for the use of machines or welding equipment for agricultural or pastoral purposes (Reg 22).

Special legislation applies to windrows (Plantations and Reafforestation Act). A Bush Fire Hazard Reduction Certificate may be obtained but the Department of Environment, Climate Change and Water should be consulted.

Special legislation applies to diseased plants and animal carcasses and disposal is regulated by the Department of Primary Industries.

**DURING THE BUSH FIRE DANGER PERIOD**

The BFDP applies from 1st October to 31st March each year, unless varied by the District Bush Fire Management Committee (BFMC).

Burning without a permit is prohibited (s87 RFA & Reg).

A permit is required from the Service having jurisdiction (RFS or NSWFB), notifications must be given and compliance with conditions.

**Land Clearance or Fire Breaks**

During the BFDP, any HR work prepared and approved by the District and carried out by a Brigade does not require a permit.



## Permit Conditions

An authorised Permit Issuing Officer (SS 4.2.2 Permits to Burn) may not issue a Permit to themselves, any immediate family member or if they have a vested interest.

Generally the applicant needs a Bushfire Hazard Reduction Certificate or Permission to Burn (Environment Reg 8) before a permit can be issued

## Burning Garbage and Refuse

The RFA (Reg 26) limits the burning of household garbage/refuse and animal carcasses within a RFD unless it is:

- (a) in a properly constructed incinerator; or
- (b) in accordance with a permit, and

the surrounds are cleared of combustible material for 5 metres.

## Cooking Fires:

RFA (Reg 25) allows the lighting of fires in the open for cooking provided it is clear of combustible material for 2 metres.

# DURING A TOBAN

## Total Fire Bans and Exemptions:

A Toban (s99 RFA) prohibits the lighting of any fire in the open air.

There are 18 standing exemptions published in the Government Gazette each time a Toban is declared. One such exemption is for gas or electric BBQs

Exemptions may be sought under schedule 18, but need to be approved in writing by the Commissioner.

An exemption may be cancelled by the District Manager (in RFD) or the OIC of the nearest NSWFB station (in FD) if the location or conditions are considered unsuitable.

## Firefighting Activities during a Toban:

There is a standing exemption for lighting fires for controlling a bushfire, urgent repairs of equipment and for the provision of food and refreshments.

# HazChem Emergency Action Code

(Mandatory after December 2008)

## For Fire or spillage

## Notes For Guidance

1 **Coarse Spray**

2 **Fine Spray**

3 **Foam**

4 **Dry Agent**

• **Alcohol Resistant Foam**

Water **must not** be allowed to come into contact with the substance at risk

### ALCOHOL RESISTANT FOAM •2 or •3

Alcohol resistant foam is the preferred medium. If not available:

– If •2 – use Fine Spray or Water Fog

– If •3 – use Normal Foam

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**V** Substance can be violently or even explosively reactive, including combustion

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**LTS (FULL)** Liquid-Tight Chemical Protective Suit with BA. Full **FIRE KIT** should also be worn for thermal protection if the substance is:  
 Liquid Oxygen  
 or Liquefied Toxic Gas (Division 2.3)  
 or Toxic Gas with sub-risk 2.1 or 5.1  
 or Class or sub-risk 3  
 or Division 5.1 PGI with sub-risk 6.1 or 8 carried at temperature > 100°C

---

**DILUTE** Dilute with large quantities of water and dam. May only be washed to drain with the approval of Department of Environment and Climate Change (DECC)

---

**CONTAIN** Prevent, by any means available, spillage from entering drains or water course

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**E** People should be warned to stay indoors with all doors and windows closed, – but evacuation may need to be considered. Consult Control, Police and product expert.

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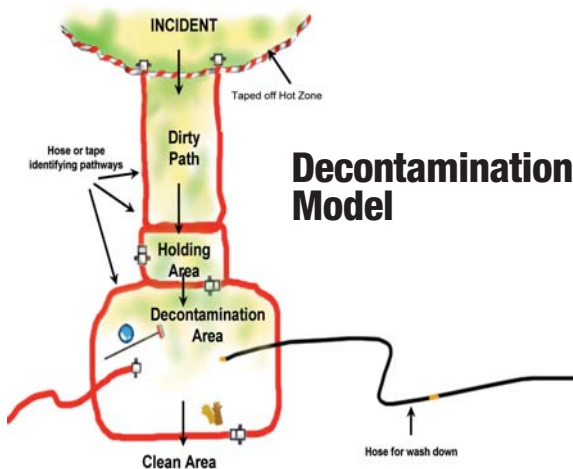
# HazChem Emergency Action Code

(Mandatory after December 2008)

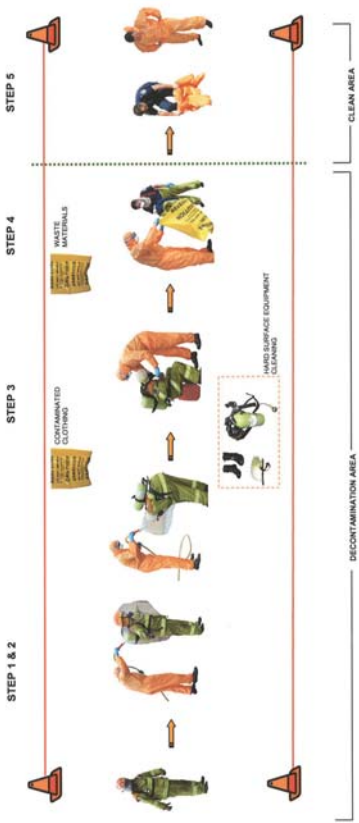
P	V	LTS	Dilute	W	V	LTS	Contain
R				X			
S	V	BA & Fire Kit		Y	V	BA & Fire Kit	
T				Z			

E	Public Safety Hazard
---	----------------------

Refer to Page 29 for vehicle panel



# General layout of decontamination area




# Explosive Devices and Suspicious Packages


**Distance  
&  
Shielding**



- 1 Follow HazMat Guidelines
- 2 Contact Triple Zero (000) and notify Police
- 3 **DO NOT TOUCH, TILT or TAMPER**
- 4 Beware of secondary devices
- 5 Preserve evidence
- 6 Maintain personal hygiene including washing hands
























## Vehicle Placards

<b>PETROLEUM FUEL</b>	 <p><b>FLAMMABLE LIQUID</b> 3</p>
UN. N° <b>1270</b>	
HAZCHEM <b>3 Y E</b>	
IN EMERGENCY DIAL <b>000 - POLICE OR FIRE BRIGADE</b>	SPECIALIST ADVICE <b>EMERGENCY PHONE 1300 131 001</b>

<b>ETHYL METHYL ETHER</b>	 <p><b>FLAMMABLE GAS</b> 2</p>
UN. N° <b>1039</b>	
HAZCHEM <b>2 P E</b>	
IN EMERGENCY DIAL <b>000 - POLICE OR FIRE BRIGADE</b>	SPECIALIST ADVICE <b>EMERGENCY PHONE</b>

# Dangerous Goods Classes and Divisions

## Class Descriptions and Placards (Mandatory after December 2008)

<p><b>1</b> Explosives</p> 	<p><b>4.2</b> Substances liable to spontaneous combustion (e.g. White Phosphorus)</p> 	<p><b>7</b> Radioactive material (category II or III)</p>  
<p><b>2.1</b> Flammable gases (e.g. LP Gas)</p> 	<p><b>4.3</b> Substances that in contact with water emit flammable gases (e.g. Calcium Carbide)</p> 	<p><b>7</b> Fissile Material</p> 
<p><b>2.2</b> Non-flammable non-toxic gases (e.g. Nitrogen Compressed)</p> 	<p><b>5.1</b> Oxidizing substances (e.g. Nitrates)</p> 	<p><b>8</b> Corrosive substances (e.g. Sulphuric Acid)</p> 
<p><b>2.2</b> Oxidizing gases</p> <p><b>5.1</b> Sub risk (nitrous oxide &amp; oxygen only)</p> 	<p><b>5.2</b> Organic peroxides</p>  	<p><b>9</b> Miscellaneous dangerous goods and articles</p> 
<p><b>2.3</b> Toxic gases (e.g. Chlorine)</p> 	<p><b>6.1</b> Toxic substances (e.g. Cyanides)</p> 	<p>Mixed class label (Multiclass) for road and rail transport</p> 
<p><b>3</b> Flammable liquids (e.g. Petrol)</p> 	<p><b>6.2</b> Infectious substances (e.g. Pathology Samples)</p> 	<p>Environmentally Hazardous Substance Mark</p> 
<p><b>4.1</b> Flammable solids (e.g. Sulphur and other reactive substances)</p> 	<p><b>7</b> Radioactive material (category I)</p> 	<p>Subsidiary risk label to be used with elevated temperature substances</p> 

# HazMat/Terrorism Guidelines

(Defensive Strategy Only)

## Emergency Procedures for Spills/Leaks of Hazardous Materials

<b>R Rescue</b>	<ul style="list-style-type: none"> <li>• Assist persons in immediate danger if safe to do so</li> </ul>
<b>A Alarm</b>	<ul style="list-style-type: none"> <li>• Contact Triple Zero (000) and notify NSWFB (Hazmat Combat Agency)</li> </ul>
<b>C Contain</b>	<ul style="list-style-type: none"> <li>• Restrict the danger area/s</li> <li>• Attend to emergency e.g. contain spill</li> </ul>
<b>E Evacuate</b>	<ul style="list-style-type: none"> <li>• Evacuate persons to a safe assembly area</li> </ul>
<p><b>1 SAFE APPROACH</b></p> <p>Don't become a victim. Don't eat, drink or smoke if contamination suspected, until checked.</p>	<ul style="list-style-type: none"> <li>• Treat all calls as potential Hazmats</li> <li>• Always look for HazChem signs</li> <li>• Safe distance, wind direction, vapour plume, weather, terrain, run-off, collapse</li> <li>• Be aware of any suspicious activity or characteristics</li> <li>• Beware of secondary hazards/devices</li> <li>• Minimise exposure time</li> <li>• Maximise shielding</li> </ul>
<p><b>2 RESCUE AND SECURE SCENE</b></p>	<ul style="list-style-type: none"> <li>• Cordon off danger area (minimum 30 metres)</li> <li>• Assist persons in immediate danger if safe to do so - ONLY rescue driver if safe to do so</li> <li>• Victims may need decontamination</li> <li>• Eliminate source of ignition</li> </ul>
<p><b>3 INCIDENT COMMAND AND ALARM</b></p>	<ul style="list-style-type: none"> <li>• Set up command point</li> <li>• Establish communications</li> <li>• Contact Triple Zero (000) and notify combat agency, NSWFB, Police, etc.</li> <li>• Situation report</li> <li>• Assist approach of other incoming emergency services</li> <li>• Identify a staging area and assembly area</li> <li>• Maintain incident log</li> <li>• Preserve evidence</li> </ul>



# HazMat/Terrorism Guidelines

(Defensive Strategy Only) Continued

## Emergency Procedures for Spills/Leaks of Hazardous Materials

### 4 IDENTIFY Hazardous Materials

(If no hazardous materials information panel, treat as 4WE)

- From a safe distance identify (use binoculars)
  - substance UN number and HazChem code
  - quantity
  - type of spillage (spill, fire, MVA, etc.)
  - name of carrier or manufacturer
  - location and access
  - threat to life (number of victims)
  - threat to property or environment

### 5 CONTAIN

- Restrict the danger area/s
- Attend to emergency if safe to do so e.g. contain spill, isolate gas/electricity

### 6 EVACUATE

- Evacuate any person in close proximity to a safe assembly area and keep them together

NSWFB is the sole combat agency for hazardous materials incidents throughout NSW, including all inland waterways.

### MONITOR SITUATION UNTIL NSWFB ARRIVE

The following actions require specialised HazMat Teams.

**Rural Fire Service to liaise and assist as required.**

### NSWFB HAZMAT ROLE

- 7 Assess potential harm and minimise environmental contamination
- 8 Call in resources
- 9 Monitor information
- 10 Render safe and decontaminate

## The International Search and Rescue Advisory Group (INSARAG)

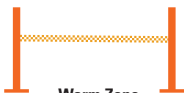
# Urban Search and Rescue (USAR) Standard Marking System

- An integrated, multi-agency response, to locate, provide initial medical care and remove entrapped persons from damaged structures in a safe and expeditious manner
- A hazardous environment where rescuer safety is the primary consideration:
  - **DO NOT** enter a USAR site unless instructed to do so by an authorised person
  - **DO NOT** enter confined spaces unless trained and authorised
  - Wear full personal protective equipment including goggles and gloves
  - If entering a site, request dust mask, knee and elbow protection and a head torch
- A site is divided into 'Hot', 'Warm' and 'Cold' Zones



**Hot Zone**  
**(Collapse Hazard Area)**

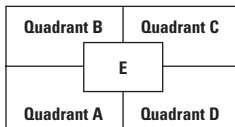
marked by perimeter fence with  
crossed barrier tape



**Warm Zone**  
**(Operational Work Area)**

marked by perimeter fence with a  
single horizontal barrier tape

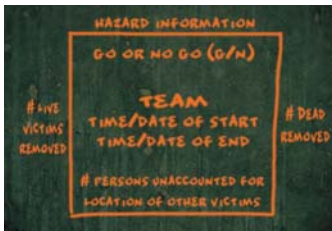
- Collapsed structure is divided clockwise into quadrants A to D
  - the centre core (optional) is identified as E
  - multi-storey structures have each floor marked as viewed from the exterior



**Plan**  
**View**

**Front of Structure**

- Structure Assessment Marking



1m x 1m box at the primary access point containing all information required by rescue teams



When assessment is complete, a circle is drawn around but this does not mean the rescue task is complete

- Victim Marking



A large 'V' is drawn near the location of known or potential victim/s indicating the number of living and dead



An arrow is drawn beside the 'V' to indicate location of the victim/s has been confirmed



A line drawn through the 'L' or 'D' indicates the victims that have been extricated



A line is drawn through the 'V' when extrication is complete. A line through the 'V' and a circle indicate all victims removed and rescue team has moved on

# Electricity 1 Potential hazards:

## Approach

- Electricity Authority to attend
- 240 volt and over may arc from one wire to another or to ground
- Look out for electrical hazards, wires may fall, point them out to your crew
- Tell your crew what precautions to take
- Identify both ends and beware of recoil
  - Note:** both ends may be “live” or wires may become live at any time by remote switching gear
- Do not park under wires
- Wait until Electricity Authority has declared and shown to be “SAFE”
- Be aware of generators, uninterruptable power supply systems, solar panels, wind generators, batteries and inverters

## Bush fire

- Poles or cross arms burnt and fallen wires
- Fallen wires can energise metal or wire fencing
- Conduction through hose streams
- High voltage power transmission may arc to ground through smoke and fire

## Structure fires

- Service wires to or within the building
- Conduction through ladder (eg. whilst carrying ladder or through electrified gutter)
- **Note:** power (light) may be left on for evacuation of a building

## MVA

- Fallen wires due to pole impact
- Wires dislodged off insulators and touching crossarm or pole may make pole live. **Note:** vehicle may be electrified
- Impact and damage to object powered by electricity
  - Note:** vehicle may be electrified
- Wires on vehicle – occupants may be able to drive clear, if not, have them remain in the vehicle until power isolated
- If vehicle is on fire – occupants may, as a last resort, jump clear without touching the vehicle and bunny hop (to avoid step potential see page 41) until well clear - at least 8m

# Electricity 2

## Potential hazards:

### Storm Damage

- Damaged poles or cross arms and fallen wires
- Low clearance
- Trees, branches or building debris bringing down wires
- Trees or branches in contact with wires

### Substation DO NOT ENTER

- Call to any intruder to sit and remain where they are  
– whole substation may need to be isolated

## NO-GO-ZONE – for up to 200,000 volts

- Use clean water only (do not use brackish, salty or bore water)
- Stand on dry ground
- Keep clear of run off water

Nozzle Size	Pressure	Minimum Distance from Conductor
25mm	700 kPa	21.5 metres
20mm	700 kPa	18.5 metres
12mm	700 kPa	9.0 metres
Diffuser (hollow jet)	700 kPa	9.0 metres
Diffuser (30 <sup>0</sup> spray)	700 kPa	8.0 metres

## Electricity 3

### Pole Top Fires

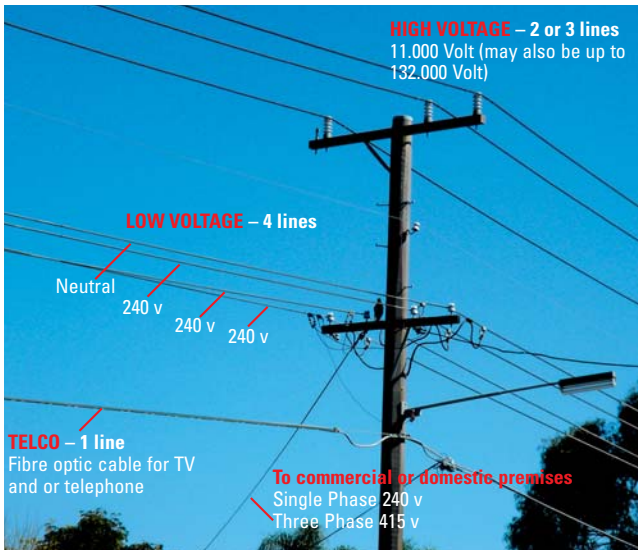
- Pole or wires may fall
- Stand minimum 8m clear to one side
- Preferably have power isolated first
- Stand uphill from any wet ground. Do not attempt if ground is wet or it is raining
- Use approved nozzle only (as supplied by the RFS)
- Broken stream of fresh clean water only with water falling onto fire
- **Do not use brackish water, salty water or bore water**



**NO-GO-ZONE** refer to table in Electricity 2 (page 36)

**Caution:** Many poles are treated with Copper Chrome Arsenate (CCA). Avoid exposure to hazardous smoke, ash and dust from burnt or burning poles. Ground can also be contaminated. Use CABA if available

# Electricity 4



**Note:** The neutral wire may be in any position

**Note:** The neutral wire may become 'live' if broken

**Note:** Telco lines may carry low voltage up to 90 volts and may be 240 volts to power amplifiers

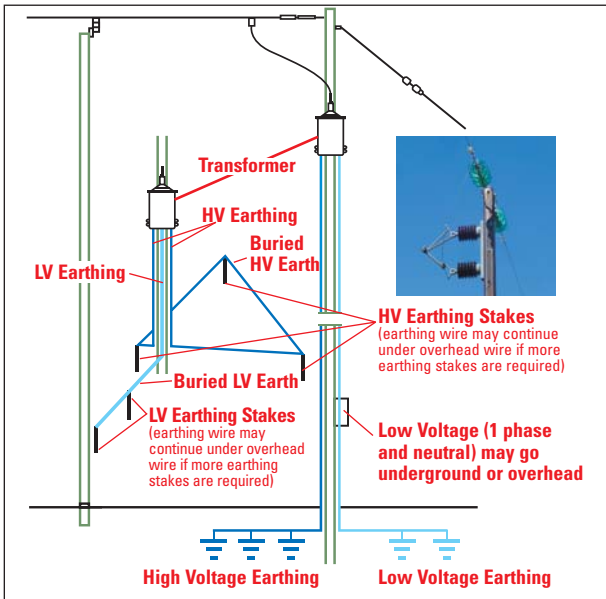
**Low voltage may be:** 1 line (single wire earth return - SWER)  
2 lines (one phase 240 volts)  
3 lines (two phase 415 volts)  
4 lines (three phase 415 volts)

# Electricity 5

## SWER - Single Wire Earth Return

(May typically be found in some country areas)

**CAUTION:** If there is any apparatus on a SWER pole there may be a return path through the earth via earth stakes. If earthing is damaged, don't go near the pole as a step potential is possible. High voltage may be up to 11,000 volts.





# Electricity 6

**Low and High  
Voltage Bundle  
Conductors**

**CAUTION:  
Appear the SAME  
Treat as High Voltage**



**High Voltage  
Open Aerial Conductors**

**High Voltage Bundle**



**Low Voltage Open Aerial  
Conductors**

**Low Voltage Bundle**

# Electricity 7

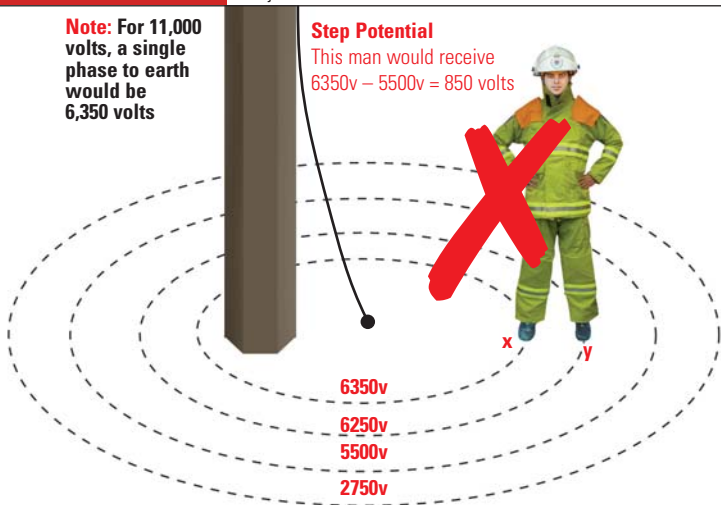
## Step Potential

- When electricity is released into the ground, it will “fan” out from the point of contact and voltage will drop over distance.
- Avoid the danger of step potential, go no closer than 8m from where the conductor touches the ground or object in contact with conductor.

**Note:** For 11,000 volts, a single phase to earth would be 6,350 volts

### Step Potential

This man would receive  
 $6350\text{v} - 5500\text{v} = 850$  volts



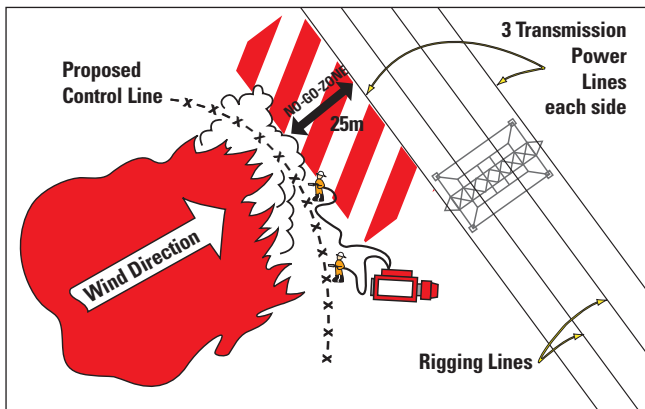
### NO-GO-ZONE – WITHIN 8 METRES OF CONDUCTOR

**Note:** An energised wire in a river, lake or sea may produce potentially fatal voltages in the water as far 150 metres away from the wire

# Electricity 8

## Transmission Lines

- **NO-GO-ZONE** for vehicles and personnel if fire or smoke within 25 metres of outer wire
- Flame and smoke may cause arc from one wire to another or to ground
- **Keep hose stream below head height**
- High trees in easement are a hazard
- Review strategy if within 25 metres



# First Aid 1

<b>D</b>	<b>Danger / Safety</b>	<b>Assess situation for danger / safety</b> , ensure scene is safe for you, your crew, casualty and others		
<b>R</b>	<b>Response</b>	<b>Assess level of consciousness</b> , can you hear me, if no response, call for Ambulance on triple zero (000).		
<b>A</b>	<b>Airway</b>	<b>Clear and open the airway</b> . Check for signs of life (Tilt head back and lift jaw except for baby), remove any obstructions		
<b>B</b>	<b>Breathing</b>	<b>Check for breathing</b> , look, listen and feel, if not breathing, 2 initial breaths to casualty. Recheck for signs of life (no response, no breathing, no movement).		
<b>C</b>	<b>Compressions</b>	If no signs of life, give 30 chest compressions at 100 per minute, then give 2 more breaths. Look for and control bleeding. Check for burns and breaks. <b>Don't</b> remove clothing <b>Don't</b> give an unconscious casualty food or water		
<b>D</b>	<b>Defibrillate</b>	Attach AED as soon as available and follow the prompts Continue CPR until qualified personnel arrive or signs of life return.		
<b>E</b>	<b>Evacuation</b>			
<b>CPR Cardio Pulmonary Resuscitation</b>	<b>1 operator or</b>	30 compressions/2 breaths	12– Adult	2 Hands
	<b>2 operators</b>	100 compressions per minute	1 – 12 Baby	1 Hand 2 Fingers
<b>Note: Compression should be approx. 1/3 chest depth</b>				
<b>Choking (Obstructed Airway)</b>	<b>Give up to 5 back slaps initially</b>			
	<ul style="list-style-type: none"> <li>• adult or child standing or sitting (head down where possible)</li> <li>• baby face down across your knees</li> </ul>			
	<b>Followed by up to 5 chest thrusts</b>			
<ul style="list-style-type: none"> <li>• adult or child (standing or sitting) - one hand at the back and other hand at the front over sternum</li> <li>• baby face up across your knees with 2 fingers over sternum.</li> <li>• if still unrelieved, continue alternating back slaps and chest thrusts.</li> </ul>				
<b>If unconscious commence CPR</b>				

# First Aid 2

## Recovery Position

1. Rest the near arm across the chest
2. Flex the near knee up OR cross near leg over top of bottom leg
3. Rest the other arm out to the side
4. Gently roll the casualty away from you onto the side, supporting head and neck during movement



### Recovery or stable side position

**Note:** Head should be supported at all times

## Heart Attack

Constant dull heavy crushing chest pain, pain may radiate along left arm to ring finger or up neck and jaw, pale or grey pallor, dizziness, nausea, sweaty or short of breath

- DRABCDE
- Call for Ambulance
- Reassure
- If conscious – semi-sitting position
- If unconscious – recovery position

## First Aid 3

### Stroke

If you recognise the signs of stroke act **FAST**.

**F - Facial weakness:** can the person smile?  
Has their mouth or eyes drooped?

**A - Arm weakness:** can the person raise both arms?

**S - Speech difficulty:** can the person speak clearly and understand what you say?

**T - Time to act fast.**

Weakness, numbness or paralysis of face, arm or leg on one or both sides of body. Difficulty speaking or understanding. Dizziness, loss of balance or unexplained fall. Loss of vision, sudden blurred or decreased vision in one or both eyes. Headache. Difficulty swallowing.

- DRABCDE
- Call for Ambulance
- Reassure
- If conscious – semi-sitting
- If unconscious – recovery position
- Loosen tight clothing

### Heat Stress

Headache, drowsiness, fatigue, nausea, urine dark yellow, muscle cramps

**Note:** Normal body temp. 37°C

- Move to a cool place
- Loosen clothing
- Drink plenty of water

### Heat Exhaustion

Tiredness, hot, sweating, dizziness, nausea, lack of coordination, collapse, shock, 38°C – 40°C

- Stop work
- Move to a cool place
- Remove non essential clothing
- Rest
- Drink water until urine output increases
- Wet down skin

# First Aid 4

<b>Heat Stroke</b>	Very hot (dangerously high temperature), red, dry skin, rapid pounding pulse, dizziness, nausea, headache, confused, irritable, 40-42 <sup>o</sup> C, may lead to seizure	<ul style="list-style-type: none"> <li>- DRABCDE</li> <li>- Call for Ambulance/Medevac move casualty to meet ambulance</li> <li>- Reassure</li> <li>- Cold compress to neck, armpits and groin</li> <li>- Cover with wet sheet</li> <li>- Continue to cool</li> </ul>
<b>Burns</b>	Red, swollen skin, blisters, pain, clear yellow fluid, damaged or missing skin <ul style="list-style-type: none"> <li>• <b>Don't</b> break blisters or remove skin</li> <li>• <b>Don't</b> use ointments or antiseptics</li> <li>• <b>Don't</b> remove dirt, particles or clothing from the burn</li> </ul>	<ul style="list-style-type: none"> <li>- DRABCDE</li> <li>- Call for Ambulance</li> <li>- Medivac for burnt airway or serious burn</li> <li>- Reassure</li> <li>- Cool with running water for 10 mins (use helmet to catch water and reuse if in short supply)</li> <li>- Remove loose clothing or jewellery from affected limb</li> <li>- Cover with loose sterile dressing</li> </ul>
<b>Shock</b>	Pale, cold clammy skin, rapid weak pulse, rapid shallow breathing, nausea, vomiting, agitated, thirsty	<ul style="list-style-type: none"> <li>- DRABCDE</li> <li>- Reassure casualty</li> <li>- Protect from environment, protect from hot ground, shade from sun and protect from cold</li> <li>- Lay down – legs raised (unless fractured)</li> <li>- Loosen tight clothing</li> <li>- Keep warm</li> </ul>

## First Aid 5

<b>Severe Bleeding</b>	Evident, shock, decreasing level of consciousness, may lead to seizure	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Call for Ambulance/Medevac</li> <li>– Reassure</li> <li>– Apply direct pressure</li> <li>– Apply dressing</li> <li>– Immobilise and raise limb</li> <li>– If bleeding continues apply further dressings</li> </ul>
<b>Fractures</b>	Pain, swelling, deformity, loss of function, possible shortening of limb, limb may be at an angle or rotated, shock <ul style="list-style-type: none"> <li>• <b>Don't</b> straighten fractured limb</li> </ul>	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Call for Ambulance</li> <li>– Immobilise limb</li> <li>– Patient in comfortable position</li> <li>– Padding around any splint</li> <li>– Check bandaging tightness</li> <li>– Check circulation in limb</li> </ul>
<b>Severed Parts</b>	<ul style="list-style-type: none"> <li>• <b>Don't</b> clean severed, cut or body part</li> <li>• Attend to casualty first</li> </ul>	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Call for Ambulance</li> <li>– Reassure</li> <li>– Control bleeding of casualty</li> <li>– Place part in plastic bag and seal</li> <li>– Keep bag as cool as possible in iced water</li> </ul>
<b>Snake and Funnel Web Spider Bite Blue Ringed Octopus Cone Shell</b>	Puncture marks, pain, swelling, headache, dizziness, muscle weakness, difficulty breathing, shock, may lead to seizure <ul style="list-style-type: none"> <li>• <b>Do</b> attempt identification</li> <li>• <b>Don't</b> wash or cut wound</li> </ul>	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Call for Ambulance/Medevac</li> <li>– Reassure</li> <li>– Lay down on back or in comfortable position</li> <li>– Pressure/immobilisation bandage over entire limb</li> </ul>



# First Aid 6

<p><b>Red Back, other spiders, scorpion, centipede, ant, wasp or bee</b></p>	<p>Sharp sting, burning pain, stinger may be on skin</p>	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Call for Ambulance if required</li> <li>– Rest and reassure</li> <li>– Cold compress over bite area (e.g. ice in bag) up to 20 mins</li> </ul>
<p><b>Blue Bottle Stings</b></p>	<p>Severe pain, may have difficulty breathing, irrational behaviour, nausea, headache, profuse sweating</p>	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Pick off tentacles</li> <li>– Rinse off with sea water</li> <li>– Place in hot water (comfortable temperature)</li> </ul>
<p><b>Tropical Jelly Fish</b></p>	<p>Severe pain, may have difficulty breathing, irrational behaviour, nausea, headache, profuse sweating</p>	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Call for Ambulance</li> <li>– CPR if required</li> <li>– Douse with vinegar</li> <li>– If no vinegar, pick off tentacles and douse with sea water</li> </ul>
<p><b>Fish Stings</b></p>	<p>Intense pain, swelling, maybe grey or blue discolouration, bleeding</p>	<ul style="list-style-type: none"> <li>– DRABCDE</li> <li>– Call for Ambulance</li> <li>– Reassure</li> <li>– Place in hot water (comfortable temperature)</li> </ul>
<p><b>Seizure</b></p>	<p>Loss of consciousness, rigidity, spasmodic muscle contraction, tongue biting, urine incontinence</p> <ul style="list-style-type: none"> <li>• <b>Don't</b> restrain casualty</li> </ul>	<ul style="list-style-type: none"> <li>– Call for Ambulance</li> <li>– Remove surrounding items</li> <li>– Cushion head</li> <li>– After seizure maintain airway</li> <li>– Place in recovery position</li> <li>– Rest and reassure</li> </ul>

# Fire Investigation and Scene Preservation

To assist with the investigation of fires, crews need to protect the area of origin and forward all information to the District/Team/Zone Manager.

## **A formal investigation is required for:**

- death or serious injury to a firefighter or member of the public
- significant damage or destruction to an appliance, property, stock, etc.
- deliberate ignition if the fire is part of a series or if a suspect is known
- a structural fire where the cause can't be determined
- a fire or series of fires that result in the declaration of a Section 44

## **En-Route to fire:**

- note smoke colour, columns and weather conditions
- observe and record people and vehicles in the vicinity

## **On arrival:**

- note smoke and flame colour, size and location of the greatest fire activity
- protect objects and evidence related to the cause

## **Scene preservation:**

- cordon off the area first discovered burning, plus 10 metres
- tape and restrict access, minimise disturbance to the area
- preserve evidence, walk in and out of scene via the same path

## **Structural fires:**

- note any external fire source, forced entry, or other evidence
- note internal and external doors and windows, open/closed/locked

## **Motor vehicle fires:**

- note vehicle make and registration
- note doors and windows, open/closed/locked, car stripped/abandoned
- minimise disturbance, the vehicle may be subject of a major crime

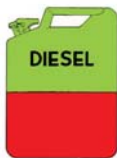
**NOTE YOUR OBSERVATIONS IN YOUR NOTEBOOK**

# **KNOW YOUR FUEL CONTAINERS!**

Old RFS colour coding introduced in 1985



**SIGNAL RED ORANGE**



**LIME GREEN CANARY BLUE BELL**

The RFS is also using the new national coloured tag system for fuel container identification. Either system may be used but the two must not be used together.



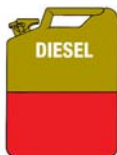
## Australasian Fire and Emergency Service Authorities Council Fuel Container and Tag Colour Coding

There is an AFAC agreement by all agencies to introduce this colour coded system over the next 20 years.

AFAC colour coding commencing in April 2010



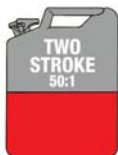
**SIGNAL RED**



**OLIVE YELLOW**



**BOTTLE GREEN**



**GREY**



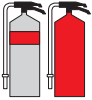
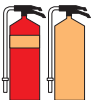
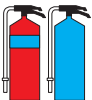



**GREEN**





## AFAC Fuel Container Colour Coding

PRODUCT	AS4977 Background	AFAC Model	PMS Colour
OIL	N/A	<b>Black</b>	-
CHAIN & BAR OIL	N/A	<b>Bright Blue</b>	B23
25:1 TWO STROKE	Bottle Green	<b>Bottle Green</b>	5535
50:1 TWO STROKE	Bottle Green	<b>Grey</b>	423
DRIP TORCH	N/A	<b>Green</b>	364
UNLEADED FUEL	Violet	<b>Signal Red</b>	1797
DIESEL	Olive Yellow	<b>Olive Yellow</b>	112
KEROSENE	Powder Blue	<b>Powder Blue</b>	2707
ETHANOL	Orange	<b>Orange</b>	158
ADBLUE	N/A	<b>Blue</b>	B41 Bluebell

Class of Fire		A	B	C	(E)	F
Type of Fire		Ordinary combustibles (wood, paper, plastics etc.)	Flammable and combustible liquids	Flammable gases	Fire involving energized electrical equipment	Fire involving cooking oils and fats
Indicating Colour	Type of Extinguisher	Extinguisher Suitability				
	<b>Water</b>	<b>Yes</b> Most suitable	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
	<b>Wet Chemical</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b> Most suitable
	<b>Alcohol Resistant Foam</b>	<b>Yes</b>	<b>Yes</b> Most suitable for alcohol fires	<b>No</b>	<b>No</b>	<b>No</b>
	<b>AFF Type Foam</b>	<b>Yes</b>	<b>Yes</b> Most suitable except for alcohol fires	<b>No</b>	<b>No</b>	<b>No</b>
	<b>AB(E) Dry Chemical Powder</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
	<b>B(E) Dry Chemical Powder</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
	<b>Carbon Dioxide (CO<sub>2</sub>)</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
	<b>Vapourising Liquid</b> (fumes may be dangerous in confined spaces)	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>No</b>

# Compressed Air Breathing Apparatus (CABA)

Calculations based on 40 l/min, which will vary from person to person dependent upon fitness and workload.

207 bar 9 litre		
Cylinder Pressure	Full duration	Safe working duration
200	45	35
190	42	32
180	40	30
170	38	28
160	36	26

300 bar 9 litre		
Cylinder Pressure	Full duration	Safe working duration
300	67	57
290	65	55
280	63	53
270	60	50
260	58	48
250	56	46
240	54	44
230	51	41
220	49	39
210	47	37
200	45	35
190	42	32
180	40	30
170	38	28
160	36	26

300 bar 6.8 litre		
Cylinder Pressure	Full duration	Safe working duration
300	51	41
290	49	39
280	47	37
270	45	35
260	44	34
250	42	32
240	40	30
230	39	29
220	37	27
210	35	25
200	34	24
190	32	22
180	30	20
170	28	18
160	27	17

**BACO BOARD:****BACO NAME:****DAY:****Date:**

Time Check and Alignment – BACO BOARD CLOCK:

FireCom CLOCK:

	Team One	Team Two	Team Three
Crew Initials:			
Arrival Time:			
Time Committed:			
Time Due Out/ Overdue:			
Time DSU Activated/Trapped:			
Time Out:			

VICTIM FOUND			
Time:	Location:	M / F Age/ID:	Time Out:
Time:	Location:	M / F Age/ID:	Time Out:
Time:	Location:	M / F Age/ID:	Time Out:

FATALITY FOUND			
Time:	Location/Details:	M / F Age/ID:	
Time:	Location/Details:	M / F Age/ID:	

**SKETCH OF BUILDING**

Mark the following on sketch	GROUND FLOOR		UPPER FLOOR	
	Fire Origin:			
Area Involved:				
Entry Point/s:				
Exit Point/s:				
BA Team Notes:				

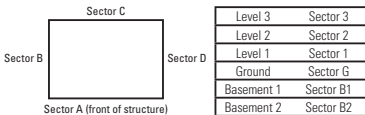
BENCHMARKS REACHED			
Area All Clear:	Time:	Primary Search Commenced:	Time:
Area All Clear:	Time:	Primary Search Completed:	Time:
Area All Clear:	Time:	Secondary Search Commenced:	Time:
Fire Extinguished:	Time:	Secondary Search Completed:	Time:
Suspected Cause:		Overhaul Completed	Time:



## Sectorising a Building

**Note:** This varies from the USAR sectorising of a collapsed building on Page 33

In the case of an irregular shaped building the IC should assign names in a logical manner, suitable for the building shape.



## Flashover

A flashover is the simultaneous ignition of all the room's contents when the combustible materials in the room are raised to their ignition temperature. Ventilation or cooling by a pulse attack can prevent a flashover.

The signs of imminent flashover include:

- high heat
- vapours being given off by the contents
- a hot, thick smoke layer descending from the ceiling that may have the occasional flashes of flame

**Cool the room and contents and ventilate heat from the room.**

## Backdraught

A backdraught occurs when the fire has reduced oxygen level in a fairly airtight room and has developed into a hot smouldering state. When the oxygen is suddenly restored, the fire may ignite explosively. Correct ventilation at high points can relieve this condition, but carefully check for fire conditions by cracking open doors or windows before opening them fully. Always have adequate hose lines ready for immediate use.

The signs of imminent backdraught include:

- Fire in an enclosed space
- High heat with little apparent flame
- Heavy, usually yellowish-grey smoke (incomplete combustion)
- Smoke stained windows
- Sometimes with hot external walls
- Muffled fire noises
- Puffing of smoke or pulsating smoke from small openings

**Cool and ventilate the room with fog stream bursts through cracked door and ventilate with care, preferably from a high point.**

## Fire Status

<b>Going</b>	Any fire spreading on one or more flanks or fronts that does not have control strategies in place for entire perimeter
<b>Being Controlled</b>	Effective strategies are in operation or planned for the entire perimeter
<b>Contained</b>	Whole of fire perimeter behind identifiable control lines. Active fire may be located inside perimeter
<b>Patrol</b>	The fire is at a stage where firefighting resources are only required for patrol purposes. Major re-ignition is unlikely
<b>Out</b>	The fire is at a stage that allows its removal from the list of current fires

## Bush Fire Classification

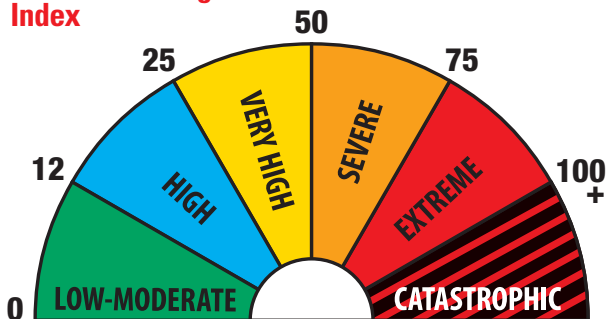
<b>CLASS ONE</b>	A bush fire under the control of the responsible fire authority, whether or not incidental/low level assistance is provided by other agencies
<b>CLASS TWO</b>	A bush fire which by necessity involves more than one agency and where the Bush Fire Management Committee Fire Classification Group have appointed a person to take charge of firefighting operations
<b>CLASS THREE</b>	A major bush fire where an appointment has been made or is imminent under provisions of Section 44 of the Rural Fires Act, 1997

A declaration under s44 of the Rural Fires Act is when the Commissioner takes charge and appoints an Incident Controller when a bush fire has assumed or is likely to assume such proportions as to be incapable of control or suppression by the local fire fighting authority. It may also be declared "pre-emptively" when conditions are conducive to the outbreak of a bush fire

The area declared may be defined as:

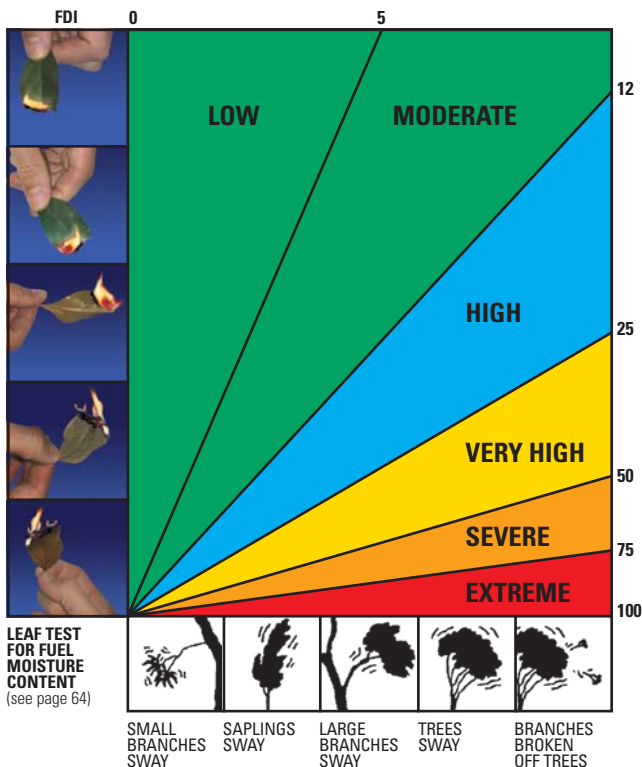
- one or more Rural Fire Districts
- one or more Local Government Areas which would include the Fire District/s
- an area defined by geographical or man made features

## Forest Fire Danger Index



## FIRE DANGER RATINGS

Category	Forest FDI	Equivalent Grass FDI
<b>CATASTROPHIC</b>	<b>100 +</b>	<b>150 +</b>
<b>EXTREME</b>	<b>75 - 100</b>	<b>100 - 150</b>
<b>SEVERE</b>	<b>50 - 75</b>	<b>50 - 100</b>
<b>VERY HIGH</b>	<b>25 - 50</b>	<b>25 - 50</b>
<b>HIGH</b>	<b>12 - 25</b>	<b>12 - 25</b>
<b>LOW-MODERATE</b>	<b>0 - 12</b>	<b>0 - 12</b>



# FIRE BEHAVIOUR RELATIONSHIPS

Fires travel upslope with the prevailing winds faster than on level ground. A five degree slope increases spread by 33 per cent; a ten degree slope by a factor of two; and a twenty degree slope by a factor of four. Corresponding reductions occur on downslopes.

Fuel Quantity is expressed in tonnes per hectare of combustible material less than 6 millimetres in diameter.

- R = rate of forward spread in kilometres per hour  
 H = flame height in metres  
 S = average spotting distance in kilometres

Fuel Quantity (t/ha)	Fire Behaviour	FIRE DANGER INDEX												
		5	10	15	20	25	30	40	50	60	70	80	90	100
5	R (km/h)	0.03	0.06	0.09	0.12	0.14	0.17	0.23	0.28	0.34	0.39	0.45	0.50	0.56
	H (m)	0.3	0.6	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
	S (km)	-	-	-	0.01	0.2	0.3	0.6	0.8	1.0	1.2	1.4	1.7	1.9
10	R (km/h)	0.06	0.12	0.18	0.23	0.29	0.34	0.45	0.56	0.67	0.78	0.89	1.00	1.11
	H (m)	1.0	2.0	3.0	4.0	5.0	5.5	7.0	8.5	10.0	11.0	12.0	13.0	14.0
	S (km)	-	-	0.2	0.4	0.6	0.8	1.2	1.7	2.1	2.5	3.0	3.4	3.8
15	R (km/h)	0.09	0.18	0.26	0.35	0.43	0.51	0.68	0.85	1.02	1.18	1.35	1.52	1.68
	H (m)	2.0	3.5	5.0	7.0	8.0	9.5	12.0	14.0	-----CROWN FIRE-----				
	S (km)	-	0.2	0.6	0.9	1.2	1.5	2.2	2.8	3.4	4.1	4.8	5.4	6.0
20	R (km/h)	0.12	0.24	0.36	0.48	0.60	0.72	0.96	1.20	1.44	1.68	1.82	2.16	2.39
	H (m)	2.5	5.0	7.0	9.0	11.0	13.0	-----CROWN FIRE-----						
	S (km)	0.1	0.5	0.9	1.3	1.7	2.2	3.0	3.8	4.7	5.6	7.2		8.1
25	R (km/h)	0.14	0.30	0.45	0.60	0.75	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00
	H (m)	3.0	7.0	10.0	12.0	14.0	-----CROWN FIRE-----							
	S (km)	0.1	0.6	1.1	1.6	2.1	2.6	3.6	4.6	5.6	6.6	7.6	8.6	9.6

# PREPARE. ACT. SURVIVE.

## RFS Bush Fire Alert Messages

### Advice

A fire has started - there is no immediate danger

### Watch and Act

A heightened level of threat. Conditions are changing; you need to start taking action now to protect yourself and your family

### Emergency Warning

You may be in danger and need to take action immediately. Any delay now puts your life at risk

### Emergency Alert

The national system, which can deliver warning messages to mobile and fixed line telephones.

### Standard Emergency Warning Signal (SEWS)

A siren, which can be played on radio or television to alert people to a life-threatening situation.

## Information Required from the Fireground to assist the Incident Controller to make an Accurate Assessment of the Warning Level.

Impact Information:	
Fire Direction of Travel: _____	Time to Impact: _____
What will be threatened:	
<input type="checkbox"/> Houses	How many: _____
<input type="checkbox"/> Infrastructure	List: _____
<input type="checkbox"/> Highways/ Railways	List: _____
<input type="checkbox"/> Towns/Villages	List: _____
<input type="checkbox"/> Suburb	List: _____
<input type="checkbox"/> Streets	List: _____
What is the access/egress: _____	
Are there any safer places: _____	
What Public Liaison has already been done or organised? _____	

## RFS Bush Fire Alert Messages (21 Dec 2009)

Fire Danger Rating (based on the actual rating at the time of the Sffirep)	Time to impact < 2 Hours	Time to impact 2 - 6 Hours	Time to impact 6 - 24 Hours	Time to impact 24 + Hours
<b>Catastrophic</b> Fires will be uncontrollable, unpredictable and fast moving. Ember attack up to 20km from fire front. Rates of spread up to 5 km/hr	<b>EMERGENCY WARNING 1</b> (EW1) IC Updates required every 30 minutes	<b>EMERGENCY WARNING 2</b> (EW2) IC Updates required every 30 minutes	<b>WATCH &amp; ACT 1</b> (WA1) IC Updates required every 2 hours	<b>ADVICE 1</b> (A1) IC Updates required 1100hrs & 1600hrs
<b>Extreme</b> Fires will be uncontrollable, unpredictable and fast moving. Ember attack up to 6km from fire front. Rates of spread up to 2km/hr	<b>EMERGENCY WARNING 3</b> (EW3) IC Updates required every 30 minutes	<b>EMERGENCY WARNING 4</b> (EW4) IC Updates required every 30 minutes	<b>WATCH &amp; ACT 2</b> (WA2) IC Updates required every 2 hours	<b>ADVICE 2</b> (A1) IC Updates required 1100hrs & 1600hrs
<b>Severe</b> Fires will be uncontrollable, unpredictable and fast moving. Ember attack up to 4km from fire front. Rates of spread up to 1.5km/hr	<b>EMERGENCY WARNING 5</b> (EW5) IC Updates required every 30 minutes	<b>WATCH &amp; ACT 3</b> (WA3) IC Updates required every 2 hours	<b>WATCH &amp; ACT 4</b> (WA4) IC Updates required every 2 hours	<b>ADVICE 3</b> (A1) IC Updates required 1100hrs & 1600hrs
<b>Very High</b> Fires can be difficult to control. Ember attack up to 2km from fire front. Rates of spread up to 1km/hr	<b>WATCH &amp; ACT 5</b> (WA5) IC Updates required every 2 hours	<b>WATCH &amp; ACT 6</b> (WA6) IC Updates required every 2 hours	<b>ADVICE 4</b> (A1) IC Updates required 1100hrs & 1600hrs	<b>ADVICE 5</b> (A1) IC Updates required 1100hrs & 1600hrs
<b>High</b> Fires can be controlled. Minimal ember attack. Rates of spread up to 0.5km/hr	<b>WATCH &amp; ACT 7</b> (WA7) IC Updates required every 2 hours	<b>ADVICE 6</b> (A1) IC Updates required 1100hrs & 1600hrs	<b>ADVICE 7</b> (A1) IC Updates required 1100hrs & 1600hrs	<b>ADVICE 8</b> (A1) IC Updates required 1100hrs & 1600hrs
<b>Low – Moderate</b> Fires can be easily controlled. Rates of spread up to 250m/hr	<b>ADVICE 9</b> (A1) IC Updates required 1100hrs & 1600hrs	<b>ADVICE 10</b> (A1) IC Updates required 1100hrs & 1600hrs	<b>ADVICE 11</b> (A1) IC Updates required 1100hrs & 1600hrs	<b>ADVICE 12</b> (A1) IC Updates required 1100hrs & 1600hrs
<b>Note:</b> For all incidents, updates are required at 11.00 hours and 16.00 hours, but in addition every 30 mins for EW 1-5 and every 2 hours for W&A 1-9.				
<b>Note:</b> Rate of Spread Calculations based on 20k/ha and flat ground, fire behaviour may vary under different fuel/slope conditions.				
<b>ADVICE ONLY - Other Fires</b> A fire that is currently posing no threat to life or property under the current weather conditions.				

# Grassland Curing Guide

Cured %	Colour	Physiological changes
0	Green	From germination to start of seed head development
20-30	Greenish-yellow	Seed head maturing and opening from top
40	Yellow-green	
60	Straw. Odd patch of green or yellow-green	Seed dropped, half to one third of most stems green. Some paddocks fully cured, others green
80	Straw. Very little green showing anywhere	Some greenness in lower third of stalks. Many stalks fully cured
90	Straw. Odd green gully	Odd stalks may show some greenness
100	Bleached	All stalks fully cured, seed heads and stalks starting to break easily



# Fuel Moisture Content

## The Single Leaf Test

Sheltered from any wind, light the end of a dead leaf and once lit, take the ignition source away. The aim is to discover the angle at which a small flame neither goes out nor flares up.



### WET

**Leaf burns only if straight down or doesn't burn at all**

All fuels in area too wet to be burnt



### MOIST

**Leaf burns if angled downwards but not if level**

Fine fuels from area will only burn if on slope or in wind



### BORDERLINE

**Leaf burns if level but not angled upwards**

Fine fuels from this position will burn very slowly unless helped by wind, slope and fuel continuity



### DRY

**Leaf can be angled upwards and still burn**

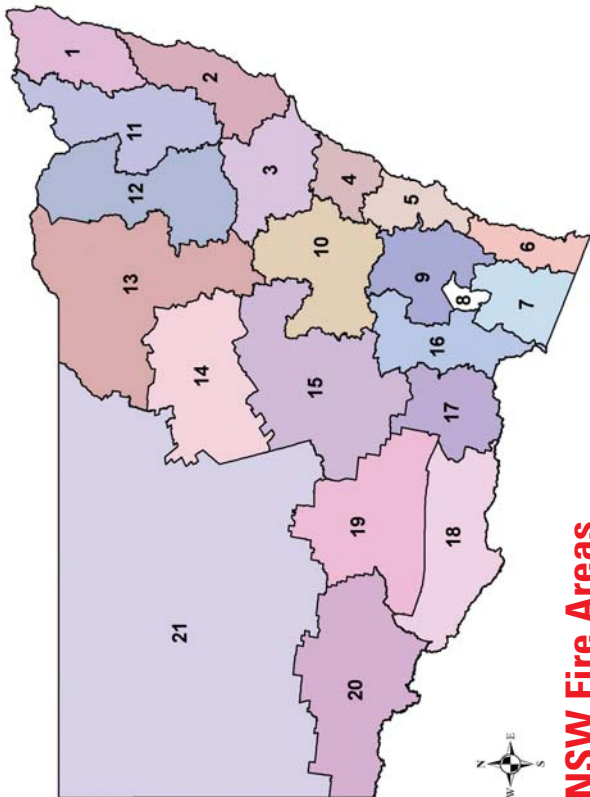
Fine fuels from area are dry enough to burn



### TOO DRY

**Leaf burns if held straight up**

All fine fuels very dry and flammable, fire will run up stringybark trees. Spotting likely, especially if windy



**NSW Fire Areas**

# NSW Fire Areas Showing Local Government Areas

<p><b>1. Far North Coast</b></p> <p>Ballina Byron Clarence Valley Kyogle Lismore Richmond Valley Tweed</p>	<p><b>4. Greater Sydney Region</b></p> <p>All Sydney Metropolitan Councils Plus Gosford, Blue Mountains, Hawkesbury and Wyang</p>	<p><b>10. Central Ranges</b></p> <p>Bathurst Regional Blayney Cabonne Cowra Lithgow Mid-Western Regional Oberon Orange</p>	<p><b>14. Upper Central West Plains</b></p> <p>Bogan Coonamble Gilgandra Warren</p>	<p><b>18. Southern Riverina</b></p> <p>Berrigan Conargo Corowa Deniliquin Jerilderie Murray Urana Wakool</p>
<p><b>2. North Coast</b></p> <p>Bellingen Coffs Harbour Groucester Great Lakes Greater Taree Port Macquarie -Hastings Kempsey Nambucca</p>	<p><b>5. Illawarra/Shoalhaven</b></p> <p>Kiama Shellharbour Shoalhaven Wingecarribee Wollondilly Wollongong</p>	<p><b>11. New England</b></p> <p>Armidale Dumaresq Glen Innes Severn Guyra Tenterfield Uralla Walcha</p>	<p><b>15. Lower Central West Plains</b></p> <p>Bland Dubbo Forbes Lachlan Narromine Parkes Temora Weddin</p>	<p><b>19. Northern Riverina</b></p> <p>Carrathool Griffith Hay Leeton Murrumbidgee Narrandera</p>
<p><b>3. Greater Hunter</b></p> <p>Cessnock Dungog Lake Macquarie Maitland Muswellbrook Newcastle Port Stephens Singleton Upper Hunter</p>	<p><b>6. Far South Coast</b></p> <p>Bega Valley Eurobodalla</p> <p><b>7. Monaro/Alpine</b></p> <p>Bombala Cooma-Monaro Snowy River</p>	<p><b>12. Northern Slopes</b></p> <p>Gunnedah Gwydir Inverell Liverpool Plains Tamworth Regional Moree Plains Narrabri Walgett Warrumbungle</p>	<p><b>16. Southern Slopes</b></p> <p>Boorowa Cootamundra Gundagai  Harden Tumbarumba Tumut Young</p>	<p><b>20. South Western</b></p> <p>Bairnald Wentworth</p> <p><b>21. Far Western</b></p> <p>Bourke Brewarrina Broken Hill Central Darling Cobar Unincorporated NSW</p>
			<p><b>17. Eastern Riverina</b></p> <p>Albury Coolamon Greater Hume Junee Lockhart Wagga Wagga</p>	

# Assessing Fine Fuel Load

## The knee-waist-shoulder method

Fine fuels occur mostly as litter on the ground or standing scrub. To assess fine fuel load, find a typical site and estimate the percentage cover of litter and scrub in a 2 metre radius:

### 1. Estimate ground litter fuels

- Estimate litter cover in %
- Estimate litter depth in cm
- Every 10% of cover x 2cm litter depth = 1 tonne/ha
- Example: 90% litter (10% bare) x 4cm litter depth = 18 tonnes/ha



### 2. Estimate scrub fuels

- Divide scrub into layers of 0.5m
- Estimate % of cover for each layer
- Every 20% of cover per layer = 1 tonne/ha

**SHOULDER**  
1.5m

**WAIST**  
1m

**KNEE**  
0.5m



Every 20% coverage = 1 tonne/ha

Every 20% coverage = 1 tonne/ha

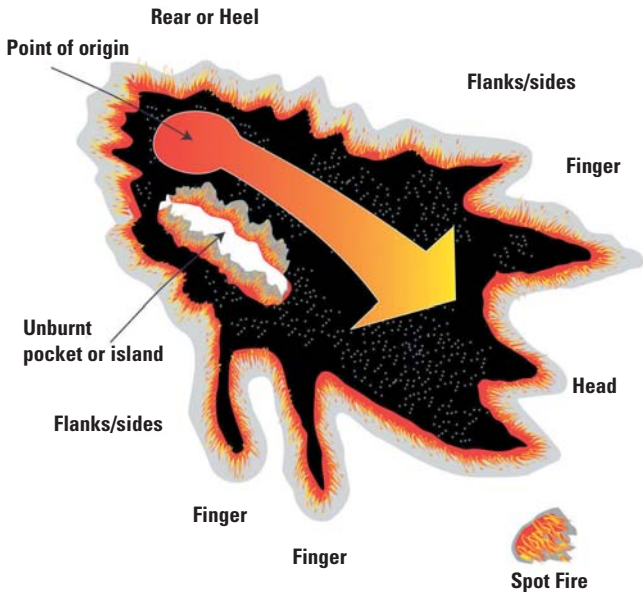
Every 20% coverage = 1 tonne/ha

### 3. Calculate total fine fuels

Total fire fuels = ground litter + all 3 scrub layers

# Parts of a Bush Fire

Within the perimeter there may be burning areas, smouldering areas and blackened areas as well as pockets of unburnt fuel. The point of origin may readily be identified or it may require fire investigation to determine the location.



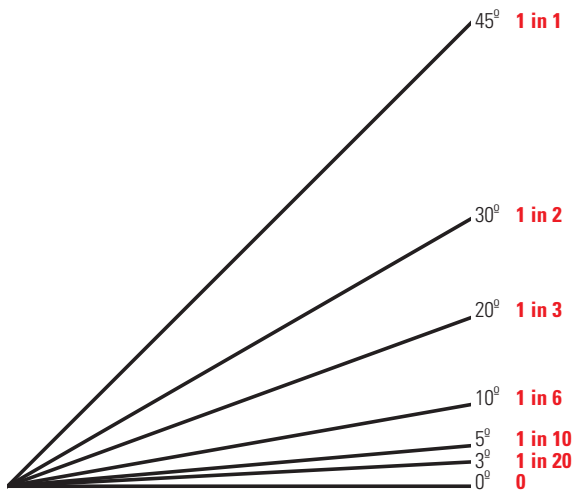
# Bush Fire Definitions 1

<b>Fireground</b>	Area affected or likely to be affected by fire
<b>Strategies</b>	A statement detailing how an objective is to be achieved, determined by the Incident Controller
<b>Tactic</b>	Tasking of personnel and resources to implement the incident strategies. On larger fires normally determined at division or sector level
<b>Ground Fire</b>	A slow burning fire, burning underground in fuels such as peat or humus
<b>Surface Fire</b>	A fire that travels above the surface in grass, low scrub, leaves and litter
<b>Crown Fire</b>	A fire, usually fast moving, burning in the crowns of the trees and supported by fire below in the ground fuel
<b>Spot Fire</b>	Isolated fire started ahead of the main fire by sparks, embers or other ignited material, sometimes a distance of several kilometres
<b>Direct Attack</b> (Offensive Strategy)	A method of suppression where wet or dry firefighting techniques are used right on the fire edge. The fire edge then becomes the containment line
<b>Parallel Attack</b> (Offensive Strategy)	A method of suppression in which the fireline is constructed approximately parallel to and just far enough away from the fire edge (heat and smoke) to enable fire fighters and equipment to work effectively and safely
<b>Indirect Attack</b> (Offensive Strategy)	A method of suppression where backburning is used within an area defined by prepared control lines, generally existing, which may be a considerable distance ahead of the fire

## Bush Fire Definitions 2

<b>Backburning</b>	Firefighting strategy, as part of an overall plan. A fire started intentionally along the inner edge of a fireline to consume the fuel in the path of a bush fire, either in a parallel attack or an indirect attack to widen an existing containment line.
<b>Observe and Patrol</b> (Defensive Strategy)	Fire in remote, rugged or inaccessible areas not causing any immediate danger, mapped and with containment strategies and fall back strategies established. Prepare for fire impact. Air attack or heavy plant may also be deployed.
<b>Line Defence</b> (Interface Defensive Strategy)	Fire threatening people and/or property where an offensive strategy is impossible due to extreme fire conditions or lack of resources. Use of hose lines or controllable tactical backburning to create a sufficient break to defend the asset. Advise/warn people at risk and consider recommending evacuation.
<b>Ember Defence</b> (Interface Defensive Strategy)	Fire producing sufficient embers to threaten people and or property where an offensive strategy is impossible. Use of hose lines to extinguish small fires as and when they occur. Advise/warn people at risk and consider recommending evacuation.
<b>Backstop Defence</b> (Interface Defensive Strategy)	Fire threatening people and or property where an offensive strategy is impossible as there is no defensible space around the buildings. Take safe refuge whilst fire impacts area, then move back after the fire passes to put out the fires. Relocate, evacuate and/or warn people at risk.
<b>Hazard Reduction</b>	Removal of combustible fuels by hand clearing, machine clearing or prescribed burning.
<b>Prescribed Burning/Burn Off</b>	The controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity and rate of spread required to attain planned prescription.

# Estimating Degree Of Slope



Degrees (approx)	Gradient	Description	Degrees (approx)	Gradient	Description
45	1 in 1	<b>Very Steep</b> A dangerous slope	10	1 in 6	<b>Moderate/Steep</b> Too steep to cycle
30	1 in 2	<b>Steep</b> Difficult to climb	5	1 in 10	<b>Moderate</b> Cycling difficult
20	1 in 3	<b>Steep</b> Steepest of roads	3	1 in 20	<b>Gradual</b>
			0	0	<b>Level</b>



# Construction Rates

**For Handcrews** Construction rates will depend on:



- Size, experience and fitness of crew
- Environmental conditions such as weather
- Nature of the fuels
- Ground and terrain

Time Worked (hours)	Efficiency	Construction Rates	
		12 tonnes per ha (m/hour)	20 tonnes per ha (m/hour)
1-2	100%	250	100
3	97%	240	97
5	69%	170	69
8	40%	100	40
10	33%	82	33

**For Machines** Construction rates will depend on:



- Type and power of machine
- Experience of operator
- Nature of the fuels including size and density of standing trees
- Ground and terrain

Bulldozer	Construction Rates (in areas with no rocks or hazards)					
	12 tonnes per ha (m/hour)			20 tonnes per ha (m/hour)		
Slope	0°-10°	10°-20°	20°-30°	0°-10°	10°-20°	20°-30°
D4	800	600	300	450	350	200
D6	850	700	400	500	400	250
D7	900	800	600	700	550	400
D8	1000	900	750	850	750	650

**Note:** grader in grassland with 0-15° slope 2000-6000m/hour

**Observe a safety distance for personnel of 30 metres or more**

# Class A Foam Mixing Guide for Aviation

Water (litres)	Foam (litres)				
	0.20%	0.30%	0.40%	0.50%	0.60%
3200	6.4	9.6	12.8	16	19.2
3100	6.2	9.3	12.4	15.5	18.6
3000	6	9	12	15	18
2900	5.8	8.7	11.6	14.5	17.4
2800	5.6	8.4	11.2	14	16.8
2700	5.4	8.1	10.8	13.5	16.2
2600	5.2	7.8	10.4	13	15.6
2500	5	7.5	10	12.5	15
2400	4.8	7.2	9.6	12	14.4
2300	4.6	6.9	9.2	11.5	13.8
2200	4.4	6.6	8.8	11	13.2
2100	4.2	6.3	8.4	10.5	12.6
2000	4	6	8	10	12
1900	3.8	5.7	7.6	9.5	11.4
1800	3.6	5.4	7.2	9	10.8
1700	3.4	5.1	6.8	8.5	10.2
1600	3.2	4.8	6.4	8	9.6
1500	3	4.5	6	7.5	9
1400	2.8	4.2	5.6	7	8.4
1300	2.6	3.9	5.2	6.5	7.8
1200	2.4	3.6	4.8	6	7.2
1100	2.2	3.3	4.4	5.5	6.6

**WARNING:** Never allow a situation to develop where the safety of a ground crew is dependent on aircraft/water bombing support. Factors outside your control could prevent continuing aircraft support.

### Vehicle-Aircraft Safety Callsign

Be alert, watch and listen for low flying aircraft and communicate with the Aircraft/Air Attack Supervisor in accordance with the communications plan.

### Fire Bombing Safety

- Monitor your PMR/GRN radio
- Listen for your Vehicle-Aircraft Safety Callsign
- Identify the aircraft Tactical Callsign
- Await instructions from the Air Attack Supervisor or bombing pilot
- Move clear and remain clear of the drop zone until directed otherwise
- Move clear of the area on hearing an aircraft activate its siren
- Resume firefighting as soon as drops are completed

**Note: Not all aircraft are siren equipped.**

#### **If caught in an aircraft drop zone:**

- Move away from the fire line or return to your vehicle
- Do not run or panic
- Watch out for falling branches or debris
- Place hand tools well clear of you
- Secure your helmet with your arms to protect your head
- Watch your footing, foams and retardants can make the ground slippery
- If hit by foam or retardant, wash off with cold water

The Air Attack Supervisor will warn ground crews of imminent danger, erratic weather, spot fires and approach of firebombing aircraft.

Provide the Aircraft/Air Attack Supervisor with changed location of ground crews, flight hazards, wind conditions, unsafe aircraft operation and adverse effects of aircraft vortex.

# Ground to Air Emergency Signals

If radio communication fails use the following for Australian Civil Emergencies:



– Require evacuation



– Require assistance



– Require medical assistance



– Am proceeding in this direction



– Require fodder



– No or Negative



– Yes or Affirmative

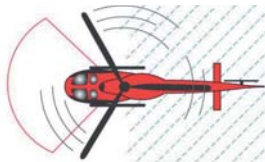
**If in doubt use International Symbol SOS**

## When forming signals:

- use wood, stones or other available material
- make symbols at least 2.5 metres high
- provide maximum colour contrast
- attempt to attract attention by other means

**The aircraft will indicate signals have been understood by rocking from side to side**

PILOT'S FIELD OF VISION



**DO NOT** approach or leave without the pilot's knowledge and clearance. Stay in pilot's field of vision.



Crouch down as you approach for extra rotor clearance. Helmets must be removed or fastened securely by a chin strap. **DO NOT** reach up, run or chase after articles that blow away.



On sloping ground always approach or leave on the down slope for maximum rotor clearance.



Carry tools horizontally below waist level – never upright or on shoulder.



**DO NOT** approach or leave helicopter when the engine and rotors are running down or starting up.



If blinded by swirling dust or grit, **STOP**, sit down and await assistance.



On entering helicopter, fasten and adjust seat belt and leave it fastened until pilot signals to get out.

## Flight Safety

- No unnecessary flights - Is there a better way to do it?
- Ensure no unnecessary passengers
- Can you justify your actions?
- Are any rules being broken?
- Don't deviate from the assigned flight tasking
- All hazards identified and all crew and passengers briefed?
- Correct PPE/PPC being worn
- Ensure effective communications
- All aviation to be supported by trained aviation personnel

## Tactical Aviation Callsigns

### Aircraft Type

### Callsign Prefix

Light Helicopter

Firebird

Medium/Heavy Helicopter

Helitak

Fixed Wing Bomber

Bomber

Fixed Wing Reconnaissance Aircraft

Firespotter

Fixed Wing Remote Sensing Aircraft

Firescan

NPWS Aircraft

Parkair

NSW Police Aircraft

Polair

NSWFB Aircraft

Fireair

- Each aircraft will also be allocated a number. Eg Helitak 221 and Bomber 223.  
The first numeral of the tactical callsign identifies the state of origin.  
Eg NSW = 2; Victoria = 3
- The callsign number will be visible on the fuselage and must be visible to ground crews
- In the interests of safety, all users are requested not to reallocate callsigns for particular incidents

### Aviation Fuel Tankers

### Callsign Prefix

Aviation Fuel Tanker

Aviation Fuel

## FIREBIRD (LIGHT HELICOPTERS)



Squirrel AS350 with one engine and 3 blades, uses Jet A1 fuel at the rate of 170 litres per hour, has a cruising speed of 224kph and carries 680 litres.



Bell 206L Long Ranger with one engine and 2 blades uses Jet A1 fuel at the rate of 170 litres per hour, has a cruising speed of 220kph and carries 680 litres.

## HELITAK (MEDIUM HELICOPTERS)



Kawasaki BK117 with twin engines and four blades, uses Jet A1 fuel at the rate of 300 litres per hour, has a cruising speed of 260kph and carries 1,100 litres.



Bell 212 with twin engines and 2 blades, uses Jet A1 fuel at the rate of 360 litres per hour, has a cruising speed of 190kph and with belly-tank carries 1,300 litres.



## HELITAK (HEAVY HELICOPTERS)



Sikorsky CH54B Sky Crane with twin engines and 6 blades, uses Jet A1 fuel at the rate of 2,080 litres per hour, has a maximum speed of 213kph and carries 9,000 litres.



Erickson Air Crane S64 Series E (Isabelle) with twin engines and 6 blades, uses Jet A1 fuel at the rate of 2,080 litres per hour, has a max speed of 213kph and carries 9,000 litres.

## BOMBER (FIXED WING AIRCRAFT)



Turbine Dromader uses Jet A1 fuel at the rate of 260 litres per hour, has a cruising speed of 240kph and carries 2,500 litres.



Air Tractor AT 802 uses Jet A1 fuel at the rate of 280 litres per hour, has a cruising speed of 280kph and carries 3,200 litres.

# Standard Helicopter Marshalling Signals 1

You must be trained and competent in marshalling helicopters.

**DO NOT** complicate a simple aircraft operation



## “Come To Me – Land Here”

*Arms vertically above the head with palms facing inwards*



## “Move Forward”

*Arms a little aside, palms facing backwards and repeatedly moved upwards and backwards from shoulder height*



## “Stop”

*Arms repeatedly crossed above head (the more urgent the stop, the quicker the movement)*



## “Cut Engine/s”

*Either arm and hand level with shoulder, hand across throat, palm down. The hand is moved sideways with the arm remaining bent*



## “Slow Down”

*Arms down with palms towards ground, then moved up and down several times*



## “Move Back”

*Arms by sides, palms facing forward, swept forwards and upwards repeatedly to shoulder height*

## Standard Helicopter Marshalling Signals 2



### **"All Clear"**

*Right arm raised at elbow with thumb erect*



### **"Hover"**

*Arms extended horizontally sideways*



### **"Move Up"**

*Arms extended horizontally to the side, beckoning upwards, with palms turned up. Speed of movement indicates rate of ascent*



### **"Move Down"**

*Arms extended horizontally to the side, beckoning downwards, with palms turned down. Speed of movement indicates rate of descent*



### **"Move Left"**

*Appropriate arm extended horizontally sideways in direction of movement and other arm moved in front of body in same direction, in a repeating movement*



### **"Move Right"**

# Standard Helicopter Marshalling Signals 3



## **"Land"**

*Arms crossed and extended downwards in front of body*



## **"Winch Up"**

*Left arm horizontal in front of body, fist clenched, right hand with palm turned upwards making upwards motion*



## **"Winch Down"**

*Left arm horizontal in front of body, fist clenched, right hand with palm turned downwards making downwards motion*



## **"Load Not Released"**

*Right arm held across chest, palm facing down. Left hand pointing up to form 'T'*



## **"Release Load"**

*Left arm extended forward horizontally, fist clenched, right hand making horizontal slicing movement below the left fist, palm downwards*



## **"Fire in or around Aircraft"**

*Make rapid horizontal figure-eight motion at waist level with either arm, pointing at source of fire with the other hand*

## T Card Resource Status







<b>Required</b>	<b>(REQ)</b>	A particular resource is required or requested by a unit
<b>Organised</b>	<b>(ORG)</b>	The required resource has been organised or arranged
<b>Standby</b>	<b>(SB)</b>	The organised resource has been placed on standby
<b>Enroute</b>	<b>(E/R)</b>	Resource dispatched to an incident that has not yet checked in
<b>Available</b>	<b>(AVL)</b>	Resource at an incident and available at short notice
<b>Allocated</b>	<b>(ALC)</b>	Resource working at an incident
<b>Stood Down</b>	<b>(S/D)</b>	Resource stood down from the shift
<b>Unserviceable</b>	<b>(U/S)</b>	Resource at an incident unable to respond for mechanical, rest or personal reasons

## Skills

<b>Bush Firefighter</b>	<b>(BF)</b>
<b>Advanced Firefighter</b>	<b>(AF)</b>
<b>Village Firefighter</b>	<b>(VF)</b>
<b>Crew Leader</b>	<b>(CL)</b>
<b>Group Leader</b>	<b>(GL)</b>
<b>First Aid Application</b>	<b>(FAA)</b>
<b>Rural Fire Driver</b>	<b>(RFD)</b>
<b>Trim and cross cut Felled Trees</b>	<b>(TFT)</b>
<b>Tree Falling Intermediate</b>	<b>(TFI)</b>
<b>Tree Falling Fireline</b>	<b>(TFF)</b>
<b>Breathing Apparatus Operator</b>	<b>(BAO)</b>
<b>Remote Area Firefighter</b>	<b>(RAF)</b>

Agency <b>RFS</b>	Name: <b>TERREY HILLS IA</b>	<b>H</b>																																	
Vehicle Category/Type: CABA Sets <input type="checkbox"/> <b>ISUZU CAT 1</b>																																			
<input type="checkbox"/> REQ <input checked="" type="checkbox"/> ORG <input type="checkbox"/> SB																																			
STRIKE TEAM / TASK FORCE ID <b>EAST 12</b>																																			
DURATION OF DEPLOYMENT   INSTANT RESPONSE <input type="checkbox"/>																																			
2 DAY (WEEKEND) <input type="checkbox"/> 3 DAY <input checked="" type="checkbox"/> 5 DAY <input type="checkbox"/>																																			
PMR <input checked="" type="checkbox"/> GRN <input checked="" type="checkbox"/> UHFCB <input type="checkbox"/> FIREGROUND <input checked="" type="checkbox"/>																																			
OTHER: _____																																			
MOBILE NO: <b>0499 655 668</b> ROOF ID NO. <b>7812</b>																																			
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**NOTE:** The rear of card provides for the recording of each task, location and date time group (DTG).

Agency <b>RFS</b>	Strike Team / Task Force Name: <b>EAST 12</b>	
    		
<input type="checkbox"/> REQ <input checked="" type="checkbox"/> ORG <input type="checkbox"/> SB		
DURATION OF DEPLOYMENT   INSTANT RESPONSE <input type="checkbox"/> 2 DAY (WEEKEND) <input type="checkbox"/> 3 DAY <input type="checkbox"/> 5 DAY <input checked="" type="checkbox"/>		
COMMS IN TRANSIT CHANNEL NO: _____ AT INCIDENT CHANNEL NO: <b>GD 71 OPS 10</b>		
RESPONSE TEAM COORDINATOR: <b>GEORGE CHAN</b> MOBILE NO: <b>04-79 355 728</b>		
Strike Team Leader: <b>SEAN BLACK</b> Mobile No: <b>04-89 661 772</b>		
Resource Name	Roof ID No.	Vehicle Type (see below)
ST/TF Leader	9901	Command
TERREY HILLS IA	7812	CAT 1
CHERRYBROOK IA	1432	CAT 1
ILLAWONG IA	3606	CAT 1
HOXTON PARK 7	0121	CAT 7
WARRIMOO 7	4062	CAT 7
DTG Arrived	DTG Released	
<b>24 1200</b>		
TASK Location/DTG		
<b>24 1400 DEC 02</b>		
STATUS <b>UBD 161 LIS</b>		
E/R _____	S/D _____	
AVL <b>24 1200</b>	U/S _____	
ALC _____		
Vehicle Type:		
Cat 1	AWD Heavy	3001-4000 litre
Cat 2	AWD Medium	1601-3000 litre
Cat 7	AWD Light	801-1600 litre
Cat 9	AWD Mop Up	350-800 litre
PC	AWD Personnel Transport	

**NOTE:** The rear of card provides for the recording of each task, location and date time group (DTG).



# T Card Colour Coding Identification

**NOTE:** A distinguishing letter (eg. Alpha, Bravo, etc.) shall be used where a Brigade has two or more vehicles of the same category

## FIRE APPLIANCE – HEAVY



AWD

**Cat 1** 3001L – 4000L  
**Cat 5** 4001L +



4x2

**Cat 3** 3001L – 4000L  
**Cat 6** 4001L +

## FIRE APPLIANCE – MEDIUM



AWD

**Cat 2** 1601L – 3000L



4x2

**Cat 4** 1601L – 3000L

## FIRE APPLIANCE – LIGHT



AWD

**Cat-7** 801L – 1600L



4x2

**Cat-8** 801L – 1600L

## FIRE APPLIANCE – MOP UP



AWD

**Cat 9** 350L – 800L

**NOTE:** The **callsign** for Cat 10 and above uses a single word (as noted in brackets) as the description. i.e. Cat 11 is a Pumper

## URBAN FIRE APPLIANCE



**Pumper**  
(AWD Cat 11 1601L+)



**Pumper**  
(4x2 Cat 10 1601L+)

## BULK WATER CARRIER



**Bulk Water** (Cat 13)

## VEHICLE



**Command** (Cat 16)  
**Communication** (Cat 19)

## PERSONNEL TRANSPORT



**Personnel Carrier** (Cat 12)

## MACHINERY



**Dozer**



**Grader**

## AIRCRAFT



**Helicopter**  
H - Heavy  
M - Medium  
L - Light



**Fixed Wing**  
H - Heavy  
M - Medium  
L - Light

## OTHER



# Hand Signals for Guiding Vehicle 1

- The driver must only take directions from the nominated guide
- Directions may be given from the front or rear of the vehicle
- The guide always faces the driver
- If the guide is to the rear of the vehicle the driver uses the mirrors
- The guide must be in the driver's field of vision at all times whilst the vehicle is in motion.
- If the guide is not in view OR the driver is unsure of a signal, the driver must STOP
- Drive at a slow constant speed
- Turn steering wheel at a slow, constant speed



**“Stop”**

*Both arms extended towards the vehicle with hands up and palms towards the vehicle*



**“Move forward”**

*Both arms raised towards the vehicle with hands up and palms away from the vehicle, hands moved in a beckoning motion*

# Hand Signals for Guiding Vehicle 2



## **“Move back”**

*Both arms raised towards the vehicle, hands down with palms away from the vehicle, hands moved in a brushing away, “go away” motion*



## **“Hold existing lock”**

*Both arms down beside the body. The driver stops turning the steering wheel but maintains existing lock*



## **“Apply right lock”**

*Left arm (if in front of vehicle): right arm (if behind vehicle). The guide raises arm extended horizontally to the side, level with the shoulder. The driver turns the steering wheel in the direction of the guide’s raised arm. The driver continues to turn the steering wheel at a constant speed until the raised arm is dropped to the side*



## **“Apply left lock”**

*Right arm (if in front of vehicle): left arm (if behind vehicle). The guide raises arm extended horizontally to the side, level with the shoulder. The driver turns the steering wheel in the direction of the guide’s raised arm. The driver continues to turn the steering wheel at a constant speed until the raised arm is dropped to the side*

# Foam Application 1

## Class A Foam

- Up to 1% for Class "A" "Ordinary Combustibles" fires including wood, paper and small Class B fires (e.g MVA or small truck accidents) (flammable and combustible liquids) fires.

## Class B foam

- 1% on shallow hydrocarbon (fuels, petrol, diesel, kerosene etc.) spills
- 3% on severe hydrocarbon and other flammable liquid such as alcohols, ketones and other polar solvents
- 3%-6% on vapour containment and suppression
- Certified for airport use, International Civil Aviation Organisation (ICAO-B)
- Can be used with aspirating or non aspirating nozzles

## Quenchmaster Fire Fighting Foam Proportioning System Operating Instructions Model CP 500



# Foam Application 2

<b>Supply</b>	<ul style="list-style-type: none"> <li>• Open the cap of the foam container 3/4 to 1 turn (Class "A" or "B")</li> <li>• Start the pump and set pressure 600 – 700kPa</li> <li>• Open nozzle/branch to provide water flow</li> <li>• Turn "Foam Valve" to 'ON' position</li> <li>• Set the Foam Selection Valve to Class A or Class B</li> <li>• Set Foam Metering Valve to the appropriate ratio               <table style="margin-left: 20px; border: none;"> <tbody> <tr> <td>Mop Up</td> <td style="text-align: right;">0.1% to 0.2%</td> </tr> <tr> <td>Initial Suppression</td> <td style="text-align: right;">0.2% to 0.5%</td> </tr> <tr> <td>Exposure Protections/Structural Attack</td> <td style="text-align: right;">0.5% to 1.0%</td> </tr> <tr> <td>Fire breaks and small Class B spills</td> <td style="text-align: right;">1%</td> </tr> </tbody> </table> </li> </ul>	Mop Up	0.1% to 0.2%	Initial Suppression	0.2% to 0.5%	Exposure Protections/Structural Attack	0.5% to 1.0%	Fire breaks and small Class B spills	1%
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<b>Standby</b>	<ul style="list-style-type: none"> <li>• Set Foam Metering Valve to 'OFF'</li> <li>• Discharge water to clear foam from pump (5 – 10 seconds)</li> <li>• Reduce pump throttle if required</li> <li>• Discharge small quantity of water regularly to cool pump</li> <li>• Reset Foam Metering Valve to the appropriate ratio when required</li> </ul>								
<b>Shutdown</b>	<ul style="list-style-type: none"> <li>• Set Foam Metering Valve to 'OFF'</li> <li>• Flush pump and hoses until all foam solution is expelled</li> <li>• Flush out primer and vehicle sprays</li> <li>• Set Foam Selection Valve to horizontal position</li> <li>• Turn "Foam Valve" to "Tank Recirc"</li> <li>• Reseal foam container</li> </ul>								

**Note:** When operating on mains hydrant supply (closed relay pumping), the outlet shall be 50kpa or more than the inlet to operate the foam system. (It would be preferable to connect hydrant to tank filler open relay pumping)

**Note:** Clean the filter, located in the "Y" strainer in the pressure line to the proportioner, on a regular basis particularly if impurities in water

# Hydrant Markers

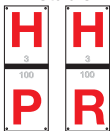
How to identify indicator plates for locating hydrants on potable and recycled water mains.

## Primary Indicator Plates

### Potable

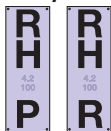


### Potable

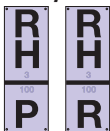


Primary indicator plates are marked with two sets of numbers. The top number gives the distance (in metres) from the plate to the hydrant and the bottom number gives the size (in millimetres) of the water main.

### Recycled



### Recycled



**Note:** H – Hydrant for potable water  
RH – Hydrant for recycled water  
P – Pathway  
R – Roadway



Black line on plate indicates hydrant is on opposite side of road

## Secondary Indicator Plates


### Potable



### Recycled



Secondary indicator plates should face each direction of approach from which the primary plates cannot be seen.

Additionally, white or yellow triangles or arrows may be painted on roads, or blue markers may be fixed to the road to one side of the centre line 



Static Water Supply indicator plate fixed in a location to be highly visible from the road and may include swimming pools, tanks, dams, ponds, creeks or dedicated water supply (DWS).

# Hand Signals

Words of command and common hand signals are given below:



## Water On

Arm raised above head vertically fist clenched.

## Increase Pressure

Arm raised above head vertically and dropped to side. Each signal requires pump pressure to be increased by 100kpa.



## Water Off

Arm extended horizontally to the side and swung across the body.



## Decrease Pressure

Arm Extended horizontally to the side and dropped to the side. Each signal requires pump pressure to be reduced by 100kpa.



## Make Up Equipment

Both arms extended to the side horizontally and held for a few seconds.



## Flush Out

Both arms raised above the head.



## Report to me

Left hand placed on helmet and right hand points to crew member

# Hoses and Pressures 1 (Rough Guide)

## Optimum Nozzle Pressures

Standard branch with straight nozzle 12mm diameter or less	Best at 250kPa
Controllable jet/spray nozzles	Best at 500kPa
Foam making branch	Best at 550kPa
Pistol grip fog nozzles (discharge ranges from 50 - 475 l/min)	Best at 700kPa

## Height Loss or Gain

- Add 10kPa for each metre the nozzle is above the pump
- Subtract 10kPa for each metre the nozzle is below the pump

## Friction Loss (rule of thumb adopted by RFS)

- Add 100kPa for 30 metre length at typical operating pressure

## Typical Pump Pressure Calculation

Hoses 100 kPa for each length	3x38mm = 300kPa
Pressure required at Nozzle	700kPa
<b>Total</b>	<b>1,000kPa at pump</b>

## Tanker Protection System

- Optimum pressure to operate Tanker Protection System is 300kPa

## Each line of hose to supply water through pump relay should not be expected to carry more than:

- 1000 l/min for 65mm hose
- 250 l/min for 38mm hose
- 100 l/min for 25mm hose



## Hoses and Pressures 2 (Rough Guide)

### Discharge Volumes

(Note: Rotary head nozzle 3mm to 8mm, 38mm triple purpose nozzle 8mm and 65mm triple purpose nozzle 15mm)

Nozzle Size (mm)	Pressure at Nozzle 500kPa Discharge (l/min)	Pressure at Nozzle 700kPa Discharge (l/min)
3	12	15
8	86	100
12	170	230
15	335	395
20	556	675

### Draughting

Pressure at sea level is approximately 100kPa

If a perfect vacuum (10kPa for 1 metre) maximum lift would be 10 metres

Maximum practical lift for vehicle pump is 7 metres

Maximum practical lift for portable pump is 5 metres

- 3.0 metres lift Pump efficiency 70%
- 5.0 metres lift Pump efficiency 60%
- 7.0 metres lift Pump efficiency 45 – 50%

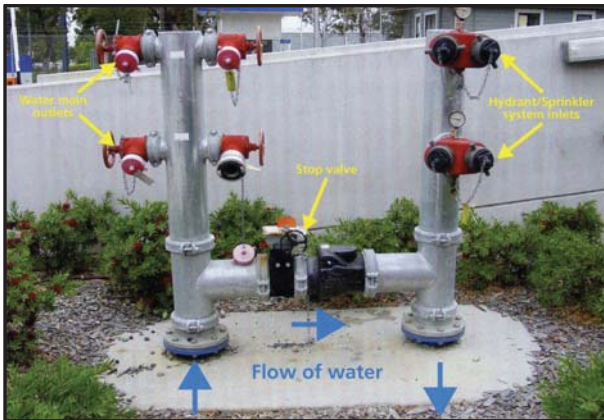
### Volume of Water in a Dam, etc.

Length (m) x width (m) x average depth (m) = cubic metres x 1,000 litres = volume

### Volume of Water in a Cylindrical Tank

$3.14 \times \text{radius}^2 \text{ (m)} \times \text{height (m)} = \text{cubic metres} \times 1,000 \text{ litres} = \text{volume}$

# Booster Valve



## Fire Service Booster Connection

The normal flow of water for the building follows the blue arrows.

To boost the pressure:

- Start tanker or pumper pump
- Connect one line (but preferably two) from water main outlet valve/s on street side riser to tanker or pumper inlet
- Open riser valve/s and tanker or pumper inlet valve
- Connect one line from tanker or pumper outlet to inlet on building side riser (there is generally an arrow on the main valve housing indicating the direction of flow)
- Close main valve on cross flow pipe
- Open tanker or pumper outlet valve
- Raise pump pressure as required

# Working On Roads

## Emergency Operational Work on Roads

- Fire
- Motor Vehicle Accident (MVA)
- Storm Damage Incident



- Wear full PPC
- Beacons activated
- Sitrep to FireCom
- Police and required combat agencies to be “called”
- Park to protect crew and scene
- Risk and hazard assessment
- Then as necessary:
  - Close or partially close road in one or both directions
  - Control traffic
  - Roadside signage
  - Traffic cones
  - Observer/s and/or traffic controller/s with “High Visibility Vest” for added safety
- Note: Two-piece issue PPC after June 2007 with two bands of two colour reflective tape on the jacket is compliant for day and night use on roads.

## Non Emergency Operational Work on Roads

### General

- Wear full PPC
- Risk and hazard assessment
- Then as necessary:

### Filling from Hydrants

- Beacons activated
- Roadside signage
- Traffic cones
- Observer/s with High Visibility Vest

### Mechanical Breakdown

- Beacons/hazard lights activated
- Breakdown triangles
- Traffic cones
- Notify FireCom

### Hazard Reductions

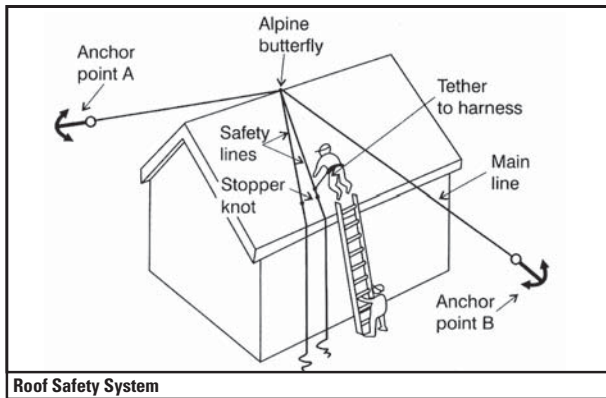
- Beacons activated
- Roadside signage
- Prepared traffic control plan
- Advance media publicity

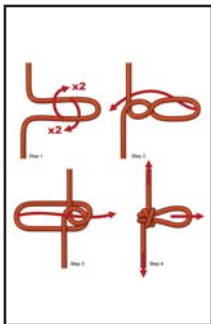
### Hydrant Inspections & Installation of Blue Hydrant Markers

Refer to Operational Protocol – “Transport Incidents including Working on Roads”

# Working on Roofs

- Can repairs be made without working on the roof?
- Is there a benefit in conducting the activities?
- All members of the Working on Roofs Team (WRT) to be competent.
- Only use an approved Roof Safety System (RSS).
- Minimum four WRT members, max 2 on one RSS and min 2 on the ground.
- Conduct risk assessment and implement safety controls:
  - Is the task beyond the competence of the WRT and/or the equipment available?
  - Is the structure visibly weak, unstable or suspected to be at risk of collapse?
  - Is severe weather forecast?
  - Is the electrical supply (including any back up supply) isolated?
- Inspect all RSS equipment for wear or damage
- WRT operator to check all knots, anchors, etc.
- WRT members to be attached to the safety line prior to leaving the ground.
- Conduct separate risk assessment for other specialist tasks (e.g. chain saw operation).

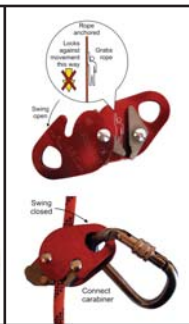




Alpine Butterfly



Rope through Harpoon



Rocker on Safety Line



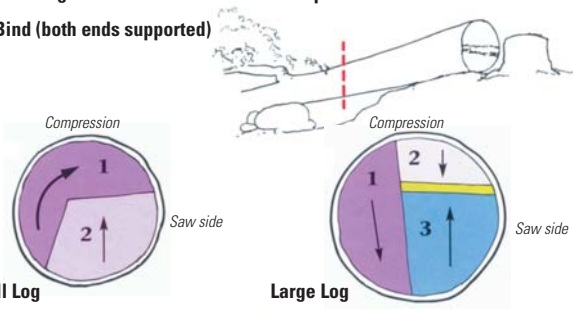
Anchor point using Tube Tape, Carabiner, Harpoon and Kermantle Rope locked off

# Chain Saw Operation

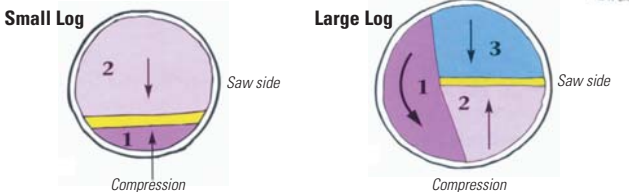
A chain saw in the hands of an incompetent person can be very dangerous. When cutting, hold the saw firmly with both hands. Keep the chain away from dirt, rocks and other obstructions. Beware of kick-back (upper quadrant of the tip).

**Cross cutting - Assess the bind and cut compression first.**

**Top Bind (both ends supported)**

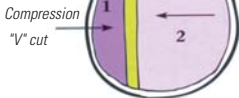


**Bottom Bind (one end supported)**

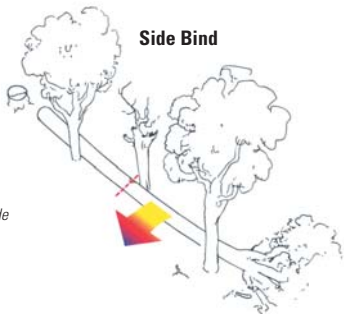
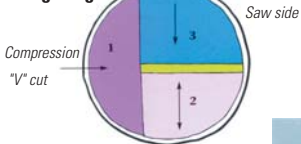


Reference: Chain Saw Operators Manual - State Forests of NSW

### Small Log



### Large Log

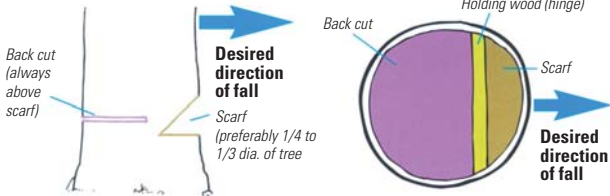


### Simple Tree Felling

Preparation at each tree prior to Felling. This is a dangerous practice and should only be carried out by a competent chain saw operator. The majority of accidents occur within 4m of the stump.



### Standard Scarf



Reference: Chain Saw Operators Manual - State Forests of NSW

# Hazardous Trees

## Identify Hazard/s (Assess Potential of Inherent Defects or Weaknesses):

- Inspect area and canopy (fireground, staging area, rest area, refuge area or escape route)
- Identify hazardous tree, hazardous limb or unstable ground
  - Dead, dying or green trees
  - Dead or broken tops
  - Cracks, splits or fractures
  - Damaged forks
  - Indications of rot
  - Leaning trees
  - Root bowl lifting
  - Thinning crowns
  - Leaf discolouration or leaf loss (other than deciduous trees)
  - Fallen trees or branches may indicate others may fall

## Trees' integrity can be further compromised by:

- Fire, prescribed burn or hazard reduction
  - Smoking or flaming chimneys or limbs
  - Burning or smoking inside stumps or trunks
  - Burnt out roots
- Helicopter's rotor wash
- Aircraft water, foam or retardant drops
- Working around heavy equipment
- High winds, heavy rain, snow or hail – current and/or predicted
- Storm damage or flood
- Falling after heavy prolonged rain

## Fireground Safety:

- Falling trees
- Falling trees not "settled"
- Felled tree damaging adjacent trees
- Watch a tree all the way down – don't turn your back on it



- Falling limbs, which may trigger a cascade at the time or later
- Rolling logs, which can spin, slide or shift
- Unstable ground, rocks, boulders, etc.
- Extra vigilance after dark

**Communication:**

- Raise concerns if not safe
- Communicate hazard to all personnel on fireground and report up the line
- Include in all briefings and IAP
- Establish “Danger Zone” – twice length of tree and longer on downhill side of steep slope

**Mitigation (Identify Risk and Mitigate):**

- Cut trail around a tree prior to HR or fire (depending on intensity)
- Remove the tree
- Move the operation to avoid the tree
- Keep personnel away from the tree or close off the area

**Fireground Signage**

- “DANGEROUS TREE” coreflute sign



OR

- Hazard sign using yellow fluoro paint



OR

- Red & white hazard tape to mark off area

- SES use:

**DT** (dangerous tree)

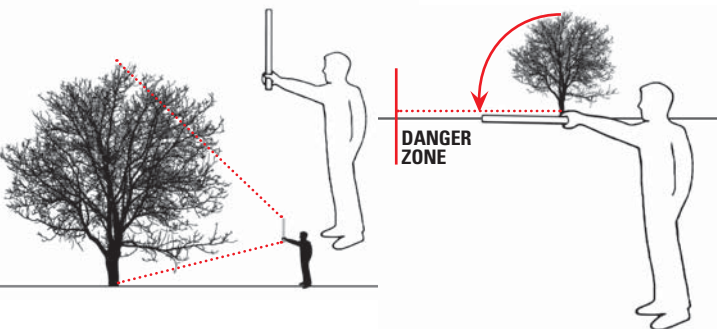
- State Forests use:

**Ø & arrow** pointing to defect

**NSW RURAL FIRE DO NOT CROSS**

## Measuring the Height of a Tree

- Find a straight stick
- Stand back a distance
- Hold the stick out in front of you
- Line up the top of the stick with the top of the tree
- Move your thumb up to mark the base of the tree at ground level
- Still holding the stick rotate to horizontal with thumb mark still at base of the tree
- Note where the top of the stick intersects the ground
- This point to the base of the tree equals the height of the tree
- The danger zone equals twice the height of the tree



## Estimating the Approximate Weight of a Tree

Half of the diameter of the tree at the base squared  
Multiplied by half the height of the tree  
Equals approximate weight in tonnes

$$(\text{Diameter} \times 0.5)^2 \times (\text{Height} \times 0.5) = \text{## tonnes}$$

# Map Referencing

## Six Figure Grid Reference

Specify Map Name, Map No. and Grid Datum (Australian Geographic Datum (AGD) or Geographic Datum of Australia (GDA) as these vary by approx. 200 metres)

– Firstly quote the easting reference:

- two digit figures along the top or bottom of map
- one digit for the distance between grid lines, divided into 10 equal parts

– Secondly quote the northing reference

- two digit figures on the sides of map
- one digit for the distance between grid lines, divided into 10 equal parts

### Example:

Allinga Road and Arizona Road intersection **59 4 21 7**



Coverting a GPS reading to a Grid Reference: 359400 6321700 = 594 217

## RED – FIRE

## BLACK – CONTROL LINES

## BLUE – WRITING &amp; SYMBOLS



Strategic or Tactical Significance



Command, Control &amp; Coordination



Logistics Related



Assets to be Protected

## Name

## Symbol

## Notes (DTG = Date Time Group)

PREDICTED (fire edge)



Show DTG

GOING (fire edge)



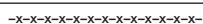
Show DTG

CONTAINED (fire edge)



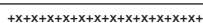
Show DTG

PROPOSED (control line)



Draw on far side of feature

COMPLETED (control line)



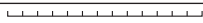
Show DTG

PROPOSED (backburn)



Draw on far side of feature

COMPLETED (backburn)



Show DTG

BACKBURN BURNING IN



Lines show depth of burn at DTG

FIRE ORIGIN



Show DTG

FIRE DIRECTION



Show DTG

WIND DIRECTION



Show DTG

SPOT FIRE



Isolated fire ahead of main fire

BURNT AREA



Burnt Area (if old, show month &amp; year)

AERIAL IGNITION



Proposed path to be treated

DIVISIONAL BOUNDARY



Use geographical names

SECTOR BOUNDARY



Use alphabetical names

REFUGE AREA



ESCAPE ROUTE (add arrow to show safe exit)

CONTROL CENTRE  
(Incident Management Team location)

DIVISIONAL COMMAND



STAGING AREA (where resources are available)



SECTOR COMMAND



BASE CAMP



HELIPAD



AIRBASE (fixed wing and/or helicopter base)

WATER POINT VEHICLE  
(Firefighting water supply)WATER POINT HELICOPTER  
(Helicopter water supply)

AMBULANCE LOCATION



ABORIGINAL SITE OR ARTIFACTS



THREATENED PROPERTY



ENDANGERED FLORA

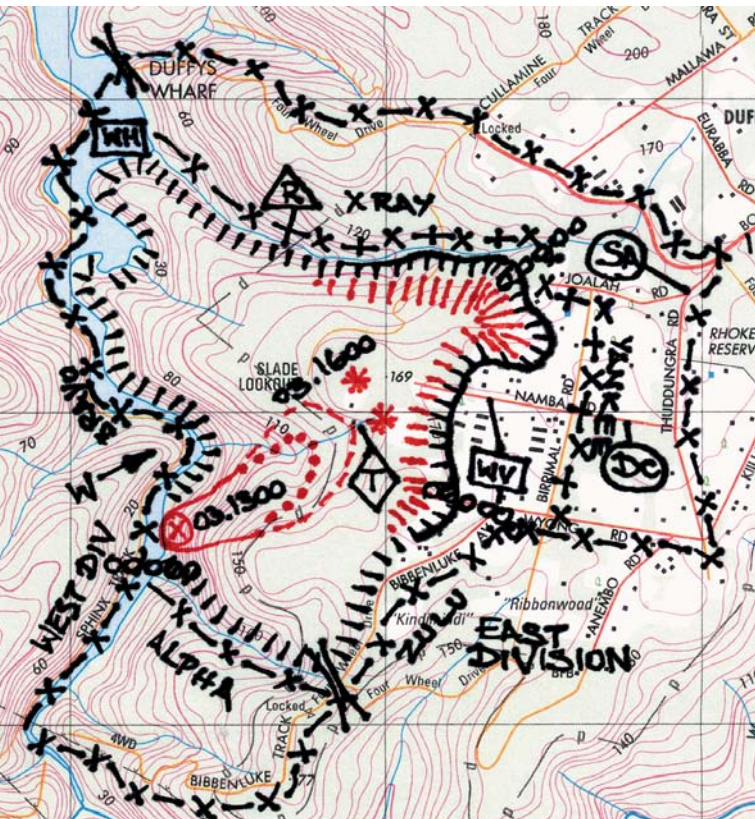


HISTORICAL SITE (building or structures)



ENDANGERED FAUNA





# Grid and Magnetic North

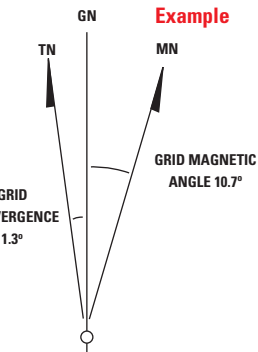
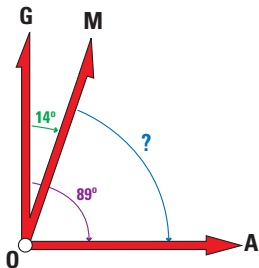
Topographic maps contain a variation diagram depicting the relationship between Grid and Magnetic North and notes:

- The angle between them
- The year when this was correct
- The value and the direction of change over time (Note: the change is often in tenths of degrees for every 3 years)

## Examples using $14^{\circ}$ as variation

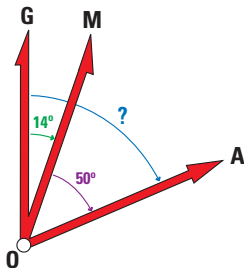
### Converting a bearing from Grid to Magnetic

$$\begin{aligned} \text{Grid Bearing } 89^{\circ} - 14^{\circ} \\ = 75^{\circ} \text{ Magnetic Bearing} \end{aligned}$$



### Converting a bearing from Magnetic to Grid

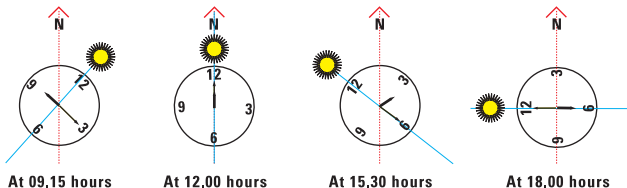
$$\begin{aligned} \text{Magnetic Bearing } 50^{\circ} + 14^{\circ} \\ = 64^{\circ} \text{ Grid Bearing} \end{aligned}$$



## Finding North by using your watch and the sun

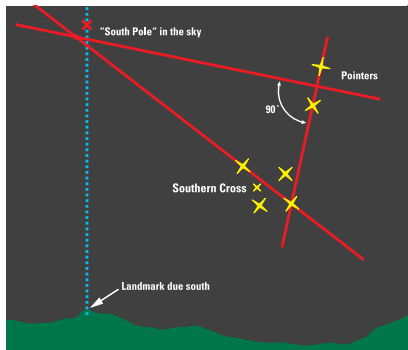
In March and September the sun rises due east and sets due west. At midday, when the sun is at its highest point in the sky, it can be taken as being due north.

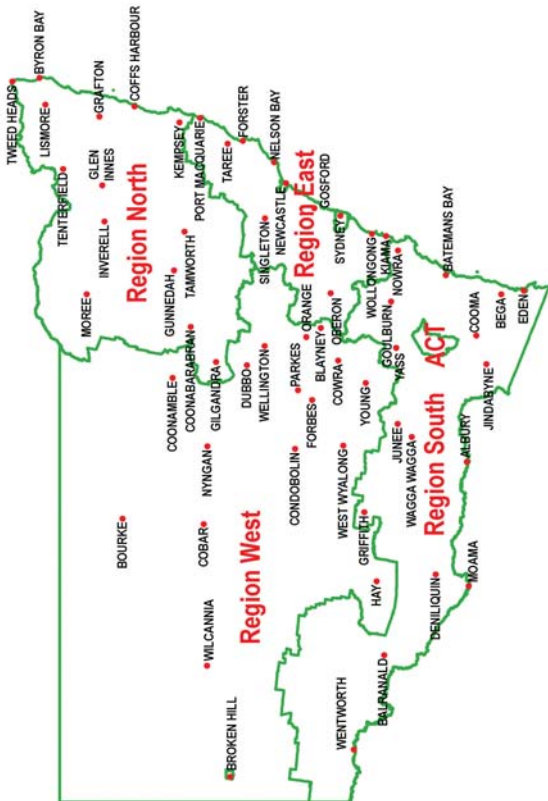
You can quickly find approximate north, whenever the sun is visible, by pointing 12 o'clock on your watch to the sun and north is then halfway between 12 o'clock and the hour hand.



## Finding South by the stars

At night, if the Southern Cross is visible, you can locate due south by drawing imaginary lines in the sky as shown in the diagram. The stars revolve around the "South Pole" in the sky during the night and as the seasons progress but the same construction of lines will define the "South Pole".







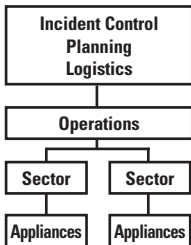
# Incident Control System 1

## SMALL INCIDENT (up to 5 appliances – 20 personnel)



All functions carried out by one officer at the incident

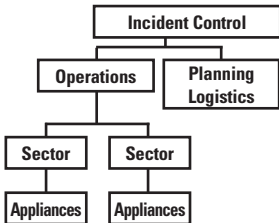
## MEDIUM INCIDENT (5 to 10 appliances – 40 personnel)



These functions carried out by one officer located close to the incident liaising with other agencies (Police, NSWFB, Ambulance, Electricity Authority, etc.)

Operations role delegated to a second officer at the incident

## LARGE INCIDENT (10 to 20 appliances – 100 personnel)

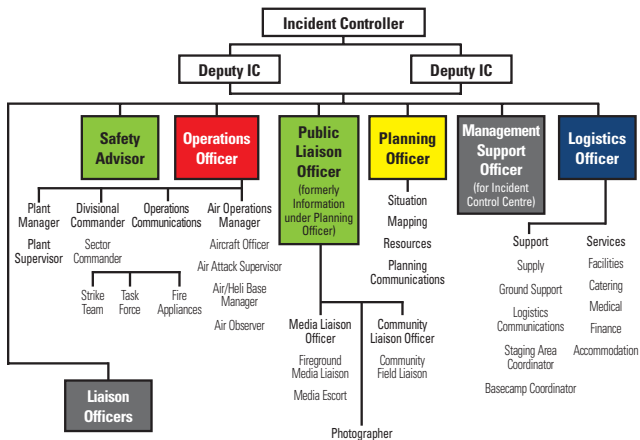


These functions carried out by three officers located at the Incident Control Centre liaising with other agencies. The Operations Officer may be at the incident

Sector Commanders at the incident

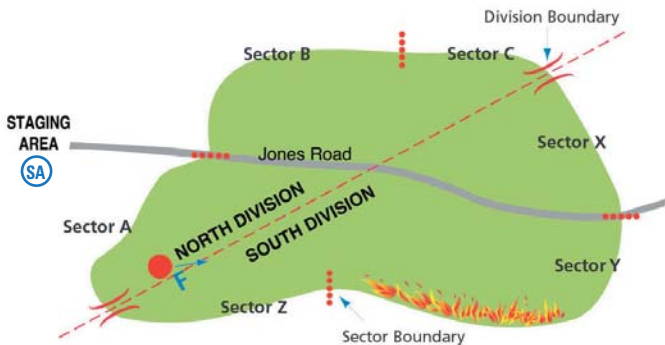
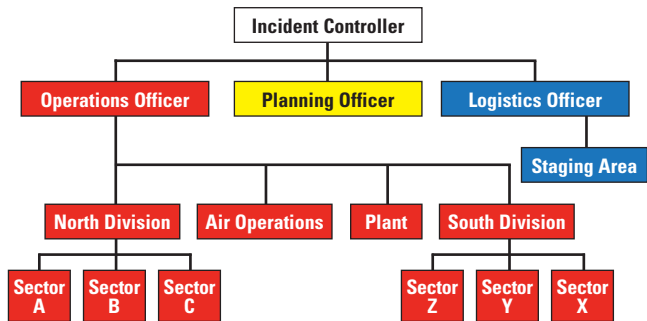
# Incident Control System 2 (continued)

## VERY LARGE INCIDENT



ICON: Incident specific and general intelligence to be entered into ICON by all sections of the Incident Management Team.

## INCIDENT MANAGEMENT TEAM



**Divisions** – use geographical names

**Sectors** – use alphabetical names

# State Assistance

**STRIKE TEAM** Five fire fighting appliances that have an established minimum number of personnel. Strike teams always have a leader in a separate vehicle and a common communication system.

## STRIKE TEAM LEADER



Located in the field and responsible for five appliances. The Strike Team Leader is NOT the Sector Commander but is there purely to ensure Strike Team is tasked and is responsible for their welfare and reports to the Response Team Coordinator.

## TASK FORCE

A combination of units or equipment assembled for a specific task, ie. bulk water carriers or heavy plant. Task forces always have a leader in a separate vehicle and a common communication system.

## TASK FORCE LEADER

Located in the field and responsible for the units or equipment. The Task Force Leader is there purely to lead the Task Force, be responsible for their welfare and reports to the Response Team Coordinator.

## RESPONSE TEAM

A Response Team is one or more Strike Teams and/or Task Forces.

## RESPONSE TEAM COORDINATOR



Located in the Incident Control Centre as part of the Incident Management Team and responsible for up to five Strike Teams/Task Forces. Must ensure that they are suitably tasked and is responsible for their welfare.

### Each appliance should have:

- single resource T Cards
- sufficient non-perishable crew field rations for 24 hours
- sufficient crew drinking water for 24 hours
- an esky

### Each crew member should at least have:

- full bush fire fighting personal protective clothing (PPC)
- water bottle
- authority card
- wet weather gear
- medication & sunscreen
- sleeping bag or swag
- casual clothes
- personal requirements
- refer to pages 7 and 8 for PPC

**Note: All strike team personnel must be over 18 years old.**

# Convoy Driving

Response Team Co-ordinator or Strike Team Leader to brief drivers

## Strike team of 5 appliances plus Strike Team Leader

### Briefing

Departure time  
Destination  
Estimated time of arrival  
Route

- Stopping points and length of stops
- Driver changeover
- Meals
- Fuel

Order of vehicles  
Stick to that order  
Communication channel  
Use of lights and sirens

### Spacing of vehicles

Minimum 200m – maximum 500m on open road  
Minimum 50m in built up or urban areas  
Minimum 5km between strike teams

## Vehicle Safety - Returning after Incident

### Safety

Mechanic to fix known problems  
Full mechanical check if appropriate  
Check tyres  
Check all equipment  
Visual check externally  
Stow all loose equipment in cabin  
Wash vehicle if appropriate  
Spray for bio-hazard if required  
Manage driver fatigue

# Service Vehicle Involved In An Accident 1

**Stop, assess damage, any injuries and provide first aid if required**

**Notify FireCom, Police and other emergency services to be called if required**

**Accident with minor damage only and no injuries**

- Driver is to remain at accident scene to exchange particulars – Vehicle and crew may continue response with another driver if initial emergency call was for a potential life threatening situation
- FireCom to arrange transport for driver

**Accident with substantial damage or any injury requiring treatment by a health professional**

- Driver, crew and vehicle to remain at accident scene – another vehicle to be responded to initial emergency call

# Service Vehicle Involved In An Accident 2 (checklist)

Record the following and take photos if possible:

Date and time of accident

Location of accident

Date, time and details of the incident to which responded

Responding – Lights? Siren?

	RFS Vehicle & Crew	Other Vehicle/s and Passengers
Driver's name, address & licence No.		
Officer in Charge – name and rank		
Crew /passengers and names		
Injuries sustained, names and details		
Injured to which Hospital		
Vehicle make, type, year, registration number & roadworthiness		
Insurance company		
Extent of damage to vehicle		
Approximate speed of vehicle/s		
Were seatbelts being worn?		
Road and weather conditions		
Police, Ambulance, Rescue, CSI or Accident Investigation in attendance		
CISS or Chaplaincy required		
Witnesses' names and addresses		
Report to Police		

# Phonetic Alphabet

**Alpha****Bravo****Charlie****Delta****Echo****Foxtrot****Golf****Hotel****India****Juliet****Kilo****Lima****Mike****November****Oscar****Papa****Quebec****Romeo****Sierra****Tango****Uniform****Victor****Whiskey****X-Ray****Yankee****Zulu**



# Communications Colour Codes

## KNOW YOUR RADIO COMMUNICATIONS PRIORITY CODE!



**EMERGENCY**  **LIFE THREATENING SITUATION**  
Unit or crew in life threatening danger

**RED**  **URGENT INCIDENT MESSAGE**  
Urgent assistance needed  
but the unit or crew not in danger

**BLUE**  **GENERAL INCIDENT MESSAGE**  
Operational incident related call

**YELLOW**  **LOGISTIC OTHER MESSAGE**  
General non-incident related call

## PROWORDS THAT DETERMINE THE PRIORITY OF MESSAGES

# Communications Definitions

<b>Affirm</b>	Yes/correct
<b>All stations</b>	General call to all stations on a network
<b>Cancel</b>	Ignore my previous instruction or request
<b>Clear</b>	End of my transmission, no reply expected
<b>Clear to you</b>	End of transmission to you, will now transmit to another unit
<b>Confirm</b>	Verify this statement
<b>Copied</b>	Message received and understood
<b>Correction</b>	Incorrect message, the correct message is...
<b>Disregard</b>	Ignore my previous statement or information
<b>ETA</b>	Estimated time of arrival
<b>ETD</b>	Estimated time of departure
<b>Incident call</b>	Report of a new incident
<b>Go ahead</b>	Permission to transmit or reply
<b>Grid</b>	Map grid references to follow
<b>I say again</b>	Repeating my last transmission
<b>Negative</b>	No/incorrect/permission not granted
<b>Nothing heard</b>	No reply to transmission received
<b>Over</b>	Transmission is over, a reply may be transmitted
<b>Read back</b>	I repeat all or part to confirm your last message <b>OR</b> you repeat back the key points of the last message I sent you
<b>Roger</b>	Message received and understood
<b>Say again</b>	Repeat all or part of your last transmission to me
<b>SitRep</b>	Situation report to be transmitted
<b>Stand by</b>	I must pause, will transmit when ready
<b>Understood</b>	Message understood

# Communications Networks 1

## Motorola 2500 & 5000

### Government Digital Radio Network (GRN Digital) [UHF]

- NSW Government Radio Network (GRN) is migrating to a digital platform and will be finished after March 2011. The analogue GRN network will then cease to operate from April 2011.
- Trunk networks, as **GRN**, generally used for **Strategic, Area** and **Command**
- You can communicate on **GRN Digital** repeaters within the "Network's" foot print, though the radio will need to be registered and activated with **GRN**.
- **GRN Digital** channels are known as '**Talk Groups**' and can be located in the '**GRN Digital**' Zone, '**GD01 AVIATN1**' to '**GD94 WOLONDL**'.
- There are Talk Groups for Aviation, DTZs, Regions, Media & Operations
- '**GRN Digital**' Operational Talk Groups are '**GD62 OPS 1**' to '**GD76 OPS 15**' and these are allocated by State Operations when required.
- **State Operations** Talk Group is '**GD87 STATEOP**'.

## Motorola 2500 & 5000 Simoco & Tait

### Private Mobile Radio (PMR) [UHF]

- Local DTZ radio repeater network.
- You can communicate if in range of any of the DTZ's repeaters.
- PMR channels are in the '**PMR**' Zone, '**P001 RFS PMR**' – '**P254 RFS PMR**'.

### Strategic Network (STRATNET) [UHF]

- Provide a point to point network between State Operations, Regional Offices and all Fire Control Centres around the State.
- Generally used for communications between Senior Commanders.
- This Network uses both channels from the '**STRATNET**' Zone '**S01 STRATNET**' to '**S30 STRATNET**' and Talk Groups from '**GRN Digital**' Zone, '**GD77 RGN EST**', '**GD78 RGN NTH**', '**GD79 RGN STH**' & '**GD80 RGN WST**'.

### Field Operations, Simplex Channels (Car to Car) [UHF] & Portable Repeaters

- RFS UHF Field Operations channels are in '**FIELD OPS**' Zone.
- Simplex channels '**F01 SIM ANLG**' to '**F08 SIM ANLG**' & '**F09 SIM DGTL**' to '**F16 SIM DGTL**', are for short range line of sight communications between units.
- RFS UHF Portable Repeater channels are channels '**F17 RPT ANLG**' to '**F24 RPT ANLG**' & '**F25 RPT DGTL**' to '**32 RPT DGTL**' and are used for local area coverage or for extension of existing radio networks.

**Liaison Channels (UHF)** (See pages 127 and 128)

- For communications between NSW Emergency Service Organisations (ESO)  
eg: NSW RFS, NSWFB, NSW SES, NSW Ambulance, ACTES and NSW Police
  - ESO are in the '**ESO Digital**' and '**ESO Analog**' Zones
  - Channels are '**ED ESO 1**' to '**ED ESO AIR35**' and '**EA ESO 1**' to '**EA ESO AIR 33**'
- For communications between other NSW Government Agencies Government Liaison (GL)
  - GLs are in '**ESO Digital**' Zones
  - Talk Groups are '**ED GL 1**' to '**ED GL 10**'

## Simoco & Tait

**Fireground Radio (VHF)**

- Fireground Channels allocated by local arrangement
- Simplex Channels '**FGND1**' to '**FGND20**' for emergency fireground use
- Repeater Channels '**21 RPT 1**' to '**24 RPT 4**' for emergency fireground repeater use
- NOTE: Fireground '**FGND11**' & '**FGND12**' have been out of service since Dec 2008 and within Region East '**FGND13**' to '**FGND20**' are allocated to specific Districts

**CB (Citizen Band) Radios (UHF)**

- Community radio controlled by convention rather than legislation and is a non-secure and non-controlled network. Should not be used for Strategic, Area, Command or Tactical communications. Good for personal communications.

## Icom Ground to Air

**Communication with Aircraft**

- Communications with an individual aircraft or an Air Attack Supervisor where multiple aircraft, when approved by the Incident Controller may be on the PMR or GRN local network. See also page 74 and 77.

STATE OPS  
REGIONS  
OTHER DISTRICTS

STRATEGIC  
NETWORK

DISTRICT/TEAM/ZONE  
FIRECOM

CCO-FIRECOM AREA NETWORK CELL  
(RADIO/FREQUENCIES/T CARDS/MAPPING)

AREA  
NETWORK

CCO-PHONES/ELECTRONIC CELL

CONTROL

COMMAND  
NETWORK

CCO-CONTROL NETWORK CELL  
(RADIO/FREQUENCIES/T CARDS/MAPPING)

DIVISION

AVIATION

HEAVY PLANT

COMMAND  
NETWORK

AVIATION  
NETWORK

SUPPORT  
NETWORK

SECTOR

SECTOR

SECTOR

TACTICAL  
NETWORKS

APPLIANCES

APPLIANCES

STRIKE TEAM

TASK  
NETWORKS

# Incident/s Channel Allocation

RADIO	ZONE	CHANNEL	TYPE	INCIDENT NAME	CALLSIGN (FireCom, Control, Aviation, Division, Sector, etc.)	NETWORK TYPE (Strategic, Area, Command, Aviation, Support, Tactical or Task)	COMMENTS (Channel allocated to:)
Local Area Network							
Local Area Network							
Motorola or UHF (Red)	FIELD OPS	F01 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F02 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F03 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F04 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F05 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F06 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F07 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F08 SIM ANLG	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F09 SIM DGTL	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F10 SIM DGTL	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F11 SIM DGTL	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F12 SIM DGTL	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F13 SIM DGTL	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F14 SIM DGTL	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F15 SIM DGTL	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F16 SIM DGTL	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND1	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND2	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND3	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND4	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND5	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND6	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND7	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND8	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND9	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND10	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND11	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND12	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND13	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND14	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND15	Fireground Simplex				

Continues on page 126

# Incident/s Channel Allocation

RADIO	ZONE	CHANNEL	TYPE	INCIDENT NAME	CALLSIGN (FireCom, Control, Aviation, Division, Sector, etc.)	NETWORK TYPE (Strategic, Area, Command, Aviation, Support, Tactical or Task)	COMMENTS (Channel allocated to:)
Fireground (Blue)	NSWRFS F/G	FGND16	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND17	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND18	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND19	Fireground Simplex				
Fireground (Blue)	NSWRFS F/G	FGND20	Fireground Simplex				
Motorola or UHF (Red)	FIELD OPS	F17 RPT ANLG	Fireground Duplex				
Motorola or UHF (Red)	FIELD OPS	F18 RPT ANLG	Fireground Duplex				
Motorola or UHF (Red)	FIELD OPS	F19 RPT ANLG	Fireground Duplex				
Motorola or UHF (Red)	FIELD OPS	F20 RPT ANLG	Fireground Duplex				
Motorola or UHF (Red)	FIELD OPS	F21 RPT ANLG	Fireground Duplex				
Motorola or UHF (Red)	FIELD OPS	F22 RPT ANLG	Fireground Duplex				
Motorola or UHF (Red)	FIELD OPS	F23 RPT ANLG	Fireground Duplex				
Motorola or UHF (Red)	FIELD OPS	F24 RPT ANLG	Fireground Duplex				
Fireground (Blue)	NSWRFS F/G	Z1 RPT 1	Fireground Duplex				
Fireground (Blue)	NSWRFS F/G	Z2 RPT 2	Fireground Duplex				
Fireground (Blue)	NSWRFS F/G	Z3 RPT 3	Fireground Duplex				
Fireground (Blue)	NSWRFS F/G	Z4 RPT 4	Fireground Duplex				
Motorola	GRN Digital	GD62 OPS 1	RFS GRN				
Motorola	GRN Digital	GD63 OPS 2	RFS GRN				
Motorola	GRN Digital	GD64 OPS 3	RFS GRN				
Motorola	GRN Digital	GD65 OPS 4	RFS GRN				
Motorola	GRN Digital	GD66 OPS 5	RFS GRN				
Motorola	GRN Digital	GD67 OPS 6	RFS GRN				
Motorola	GRN Digital	GD68 OPS 7	RFS GRN				
Motorola	GRN Digital	GD69 OPS 8	RFS GRN				
Motorola	GRN Digital	GD70 OPS 9	RFS GRN				
Motorola	GRN Digital	GD71 OPS 10	RFS GRN				
Motorola	GRN Digital	GD72 OPS 11	RFS GRN				
Motorola	GRN Digital	GD73 OPS 12	RFS GRN				
Motorola	GRN Digital	GD74 OPS 13	RFS GRN				
Motorola	GRN Digital	GD75 OPS 14	RFS GRN				
Motorola	GRN Digital	GD76 OPS 15	RFS GRN				

# ESO Radio Communication with NSW Fire Brigades

## ESO Simplex Talkgroups

The NSWFB and NSW Rural Fire Service (RFS) use the following talkgroups for radio communication between the services at joint operations in the first instance.

### Common RFS & NSWFB Simplex Talkgroups for Joint Operations

Description /Use	NSWFB Talkgroup and Name	RFS Channel (as displayed on RFS Radio ED Zone)
Primary Liaison Channel	1302 ESO SIM02	ED ESO SIM 22
Secondary Liaison Channel	1303 ESO SIM03	ED ESO SIM 23
RFS Aircraft	1301 ESO SIM01	ED ESO SIM 21

Simplex Liaison Channels ensure a standardised means of tactical communication between the NSWFB Commander and RFS Commander. NSWFB Officers use their normal call signs (eg: Duty Commander Blue Mountains or Station Officer (SO) followed by their station number) in accordance with NSWFB SOG 2.4, Radio Call signs.

## ESO GRN Trunked Talkgroups

Alternative ESO GRN trunked talkgroups may be allocated during a section 44 declaration or protracted operation in accordance with the communication plan developed for that emergency. These talkgroups must be arranged through State Operations, (02 8741.5400) and will also require the RFS radio to be active on the GRN network.



# ESO & GL

Please note: **NSW Police** use **NSW RFS 'ESO Digital' ZONE**, **'Position' 10**, **'ED ESO 10'** for their liaison.

NSW RFS			NSW FB			NSW SES			NSW Ambulance			ACTES		
ZONE	Position	Name	ZONE	Name	ZONE	Position	Name	Position	ZONE	Name	ZONE	Position	Name	
ESO Digital	1	ED ESO 1	47-D-ESO GRN	D1201 ESO 01	4	1	401-ESO 1	ESO	11	ESO D.CHAN 11	PC	15	ESO 1	
ESO Digital	2	ED ESO 2	47-D-ESO GRN	D1202 ESO 02	4	2	402-ESO 2	ESO	12	ESO D.CHAN 12	PC	16	ESO 2	
ESO Digital	3	ED ESO 3	47-D-ESO GRN	D1203 ESO 03	4	3	403-ESO 3	ESO	13	ESO D.CHAN 13	PC	17	ESO 3	
ESO Digital	4	ED ESO 4	47-D-ESO GRN	D1204 ESO 04	4	4	404-ESO 4	ESO	14	ESO D.CHAN 14	PC	18	ESO 4	
ESO Digital	5	ED ESO 5	47-D-ESO GRN	D1205 ESO 05	4	5	405-ESO 5	ESO	15	ESO D.CHAN 15	PC	19	ESO 5	
ESO Digital	6	ED ESO 6	47-D-ESO GRN	D1206 ESO 06	4	6	406-ESO 6	ESO	16	ESO D.CHAN 16	PC	20	ESO 6	
ESO Digital	7	ED ESO 7	47-D-ESO GRN	D1207 ESO 07	4	7	407-ESO 7	ESO	17	ESO D.CHAN 17	PC	21	ESO 7	
ESO Digital	8	ED ESO 8	47-D-ESO GRN	D1208 ESO 08	4	8	408-ESO 8	ESO	18	ESO D.CHAN 18	PC	22	ESO 8	
ESO Digital	9	ED ESO 9	47-D-ESO GRN	D1209 ESO 09	4	9	409-ESO 9	ESO	19	ESO D.CHAN 19	PC	23	ESO 9	
ESO Digital	10	ED ESO 10	47-D-ESO GRN	D1210 ESO 10	4	10	410-ESO 10	ESO	20	ESO D.CHAN 20	PC	24	ESO 10	
ESO Digital	11	ED ESO 11							25	ESO 11	PC	25	ESO 11	
ESO Digital	12	ED ESO 12							26	ESO 12	PC	26	ESO 12	
ESO Digital	13	ED ESO 13							27	ESO 13	PC	27	ESO 13	
ESO Digital	14	ED ESO 14							28	ESO 14	PC	28	ESO 14	
ESO Digital	15	ED ESO 15							29	ESO 15	PC	29	ESO 15	
ESO Digital	16	ED ESO 16							30	ESO 16	PC	30	ESO 16	
ESO Digital	17	ED ESO 17							31	ESO 17	PC	31	ESO 17	
ESO Digital	18	ED ESO 18							32	ESO 18	PC	32	ESO 18	
ESO Digital	19	ED ESO 19							33	ESO 19	PC	33	ESO 19	
ESO Digital	20	ED ESO 20							34	ESO 20	PC	34	ESO 20	
ESO Digital	21	ED ESO SIM21	13-ESO SIMPLEX	1 1301 ESO SIM01	4	11	411-ESO SIM1	ESO	21	ESO SIMPLEX 1	PC	35	ESO SIM 21	
ESO Digital	22	ED ESO SIM22	13-ESO SIMPLEX	2 1302 ESO SIM02	4	12	412-ESO SIM2	ESO	22	ESO SIMPLEX 2	PC	36	ESO SIM 22	
ESO Digital	23	ED ESO SIM23	13-ESO SIMPLEX	3 1303 ESO SIM03	4	13	413-ESO SIM3	ESO	23	ESO SIMPLEX 3	PC	37	ESO SIM 23	
ESO Digital	24	ED ESO SIM24	13-ESO SIMPLEX	4 1304 ESO SIM04	4	14	414-ESO SIM4	ESO	24	ESO SIMPLEX 4	PC	38	ESO SIM 24	
ESO Digital	25	ED ESO SIM25	13-ESO SIMPLEX	5 1305 ESO SIM05	4	15	415-ESO SIM5	ESO	25	ESO SIMPLEX 5	PC	39	ESO SIM 25	
ESO Digital	26	ED ESO SIM26	13-ESO SIMPLEX	6 1306 ESO SIM06	4	16	416-ESO SIM6	ESO	26	ESO SIMPLEX 6	PC	40	ESO SIM 26	
ESO Digital	27	ED ESO SIM27	13-ESO SIMPLEX	7 1307 ESO SIM07	4	17	417-ESO SIM7	ESO	27	ESO SIMPLEX 7	PC	41	ESO SIM 27	
ESO Digital	28	ED ESO SIM28	13-ESO SIMPLEX	8 1308 ESO SIM08	4	18	418-ESO SIM8	ESO	28	ESO SIMPLEX 8	PC	42	ESO SIM 28	
ESO Digital	29	ED ESO SIM29	13-ESO SIMPLEX	9 1309 ESO SIM09	4	19	419-ESO SIM9	ESO	29	ESO SIMPLEX 9	PC	43	ESO SIM 29	
ESO Digital	30	ED ESO SIM30	13-ESO SIMPLEX	10 1310 ESO SIM10	4	20	420-ESO SIM10	ESO	30	ESO SIMPLEX 10	PC	44	ESO SIM 30	
ESO Digital	31	ED ESO RPT 31	13-ESO SIMPLEX	11 1311 ESO RPT 1	4	21	421-ESO RPT1	ESO	31	ESO REPEATER 1	PC	45	ESO RPT 31	
ESO Digital	32	ED ESO RPT 32	13-ESO SIMPLEX	12 1312 ESO RPT 2	4	22	422-ESO RPT2	ESO	32	ESO REPEATER 2	PC	46	ESO RPT 32	
ESO Digital	33	ED ESO RPT 33	13-ESO SIMPLEX	13 1313 ESO RPT 3	4	23	423-ESO RPT3	ESO	33	ESO AIR 1	PC	47	ESO RPT 33	
ESO Digital	34	ED ESO RPT 34	13-ESO SIMPLEX	14 1314 ESO RPT 4	4	25	424-ESO AIR1	ESO	34	ESO AIR 1	PC	48	ESO RPT 34	
ESO Digital	35	ED ESO AIR35	13-ESO SIMPLEX	15 1315 ESO AIR 1	4	26	425-ESO AIR1	ESO	35	ESO AIR 1	PC	49	ESO AIR 35	
ESO Digital	36	ED GL 1	48-D-LIAISON	D1601 GL-01	4	27	427-Gov 10.1	ESO	34	GL 01				
ESO Digital	37	ED GL 2	48-D-LIAISON	D1602 GL-02	4	27	427-Gov 10.2	ESO	35	GL 02				
ESO Digital	38	ED GL 3	48-D-LIAISON	D1603 GL-03	4	28	428-Gov 10.3	ESO	36	GL 03				
ESO Digital	39	ED GL 4	48-D-LIAISON	D1604 GL-04	4	29	429-Gov 10.4	ESO	37	GL 04				
ESO Digital	40	ED GL 5	48-D-LIAISON	D1605 GL-05	4	30	430-Gov 10.5	ESO	38	GL 05				
ESO Digital	41	ED GL 6	48-D-LIAISON	D1606 GL-06	4	31	431-Gov 10.6	ESO	39	GL 06				
ESO Digital	42	ED GL 7	48-D-LIAISON	D1607 GL-07	4	32	432-Gov 10.7	ESO	40	GL 07				
ESO Digital	43	ED GL 8	48-D-LIAISON	D1608 GL-08	4	33	433-Gov 10.8	ESO	41	GL 08				
ESO Digital	44	ED GL 9	48-D-LIAISON	D1609 GL-09	4	34	434-Gov 10.9	ESO	42	GL 09				
ESO Digital	45	ED GL 10	48-D-LIAISON	D1610 GL-10	4	35	435-Gov 10.10	ESO	43	GL 10				

# Motorola XTL 5000 - 03



# RADIO OPERATION Motorola XTL 5000 - 03

## Turn the radio ON or OFF

Located on the top of the microphone handset there is a **RED ON/OFF** Button.

To turn the radio **ON** this button must be pressed and released. The radio is programmed to come on between 10 and 20 seconds.

To turn the radio **OFF** this button must be pressed and held for more than 2 seconds or use the Tankers' **ISOLATOR SWITCH**. (Note: that whenever power is isolated, then restored, radio will return to its previous state i.e. same Zone and Channel).

## Adjusting Speaker Volume

Located on the front of the microphone are **UP** and **DOWN** buttons. These are labelled with a **VOL ▼▲** symbol. When these are pressed a beep will be heard. It increases in volume as the UP button is pressed and decreases in volume as the **DOWN** button is pressed. You should see a **BAR GRAPH** and **VOLUME XX** on the display. It will range between 0 – 15 and a good starting point is about half way at **7**, and then adjust volume level to suit.

## Zone Change

To switch between Zones briefly press the **SOFT KEY** under the **ZONE** in the display. Using the **NAVIGATION KEYPAD** left / right arrows to scroll up and down through the Zones. Once you have reached your desired zone press the **HOME BUTTON** or **PTT**. This will lock you on to the desired Zone.

### THE ZONES ARE:

POSITION	ZONE	CHANNEL PREFIX
One	HOME Zone	contains locally determined channels applicable to your DTZ
Two	PMR Zone	P with channel number
Three	GRN DIGITAL Zone	GD with GRN P25 Digital talk group name
Four	GRN ANALOGUE	GA with GRN Analogue talk group name
Five	FIELD OPS Zone	F with channel name and type
Six	ESO DIGITAL Zone	ED with channel names and type
Seven	ESO ANALOGUE Zone	EA with channel names and type
Eight	STRATNET Zone	S with channel name and type

## Change the Channels Manually

To switch between Channels briefly press the **SOFT KEY** under the CHAN in display, using the **NAVIGATION KEYPAD** left / right arrows to scroll up and down through the channels. Stop at the desired channel and then press the **HOME** Button or press **PTT**. This will lock you on to the desired channel.

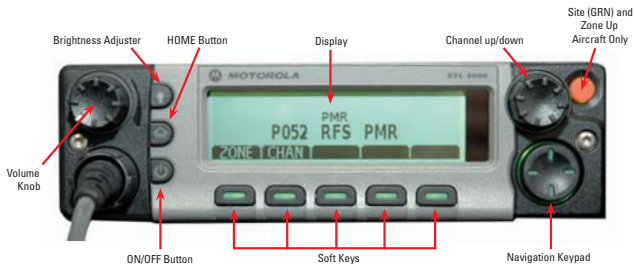
Alternatively, briefly press the **SOFT KEY** under **CHAN** in display. Using the **NUMERICAL KEYPAD** enter channel number, all digits, and then press the **HOME** Button or **PTT**. This will then lock you on to the desired channel.

Also, on this radio you can use the **CHANNEL UP/DOWN** to select the desired channel without needing to press a **SOFT KEY** and /or the **HOME BUTTON**.

*NB: Home Button - should you get lost in any of these navigations holding down the home button for 3 seconds (beeps twice) will take the radio back to your DTZ home vote group or DTZ Selected channel and you can start again.*

# Motorola XTL 5000 - 05

Desktop, FCC, OCV & Aircraft



# RADIO OPERATION

## Motorola XTL 5000 - 05 Desktop, FCC, OCV & Aircraft

### Turn the radio ON or OFF

Briefly press **ON/OFF BUTTON**. The radio is programmed to come **ON** or go **OFF** after about ten seconds.

### Adjusting Speaker Volume

Using the **VOLUME KNOB** rotate to about the 12:00 o'clock position. Adjust volume level to suit.

### Zone Change

To switch between Zones briefly press the **SOFT KEY** under the **ZONE** in the display, using the **NAVIGATION KEYPAD** left / right arrows to scroll up and down through the Zones. Once you have reached your desired zone press the **HOME BUTTON** or **PTT**. This will lock you on to the desired Zone.

Alternatively, pressing **ZONE UP BUTTON (AIRCRAFT ONLY)** will advance you one Zone up.

### THE ZONES ARE:

<b>POSITION</b>	<b>ZONE</b>	<b>CHANNEL PREFIX</b>
<b>One</b>	<b>HOME</b> Zone	contains locally determined channels applicable to your DTZ
<b>Two</b>	<b>PMR</b> Zone	<b>P</b> with channel number
<b>Three</b>	<b>GRN DIGITAL</b> Zone	<b>GD</b> with <b>GRN</b> P25 Digital talk group name
<b>Four</b>	<b>GRN ANALOGUE</b>	<b>GA</b> with <b>GRN</b> Analogue talk group name
<b>Five</b>	<b>FIELD OPS</b> Zone	<b>F</b> with channel name and type
<b>Six</b>	<b>ESO DIGITAL</b> Zone	<b>ED</b> with channel names and type
<b>Seven</b>	<b>ESO ANALOGUE</b> Zone	<b>EA</b> with channel names and type
<b>Eight</b>	<b>STRATNET</b> Zone	<b>S</b> with channel name and type

### Change the Channels Manually

Use the **CHANNEL UP/DOWN** knob to change to your desired channel.

*NB: Home Button - should you get lost in any of these navigations: holding down the home button for 3 seconds (beeps twice) will take the radio back to your DTZ home vote group or DTZ Selected channel and you can start again.*

# Motorola XTS 5000



# RADIO OPERATION Motorola XTS 5000

## Turn the radio ON or OFF

Using **ON/OFF / VOLUME KNOB** rotate clockwise past the click point and the radio should come on with information in the display. If there is no display, battery may be flat, so replace or recharge battery. To turn **OFF**, rotate **ON/OFF / VOLUME KNOB** fully anticlockwise, past the click.

## Adjusting Speaker Volume

Rotate **ON/OFF / VOLUME KNOB** clockwise to about half way position as a good starting point and then adjust volume level to suit.

## Zone Change

To switch between Zones use the **ZONE KNOB**. Rotating the knob will change between Zones. As the Portable does not display the Zone name. You will need to observe the channel prefix, ie. P, GD, GA, F, ED, EA & S, as this indicates the Zone you are in (*Note: Zone knob will always override soft key selected zone*).

To switch between Zones briefly press the **SOFT KEY** under the **ZONE** in the display. Using the **NAVIGATION KEYPAD** left/right arrows to scroll up and down through the Zones. Once you have reached your desired zone press the **HOME BUTTON** or **PTT** briefly. This will lock you on the desired Zone.

## THE ZONES ARE:

POSITION	ZONE	CHANNEL PREFIX
One	HOME Zone	contains locally determined channels applicable to your DTZ
Two	PMR Zone	P with channel number
Three	GRN DIGITAL Zone	GD with GRN P25 Digital talk group name
Four	GRN ANALOGUE	GA with GRN Analogue talk group name
Five	FIELD OPS Zone	F with channel name and type
Six	ESO DIGITAL Zone	ED with channel names and type
Seven	ESO ANALOGUE Zone	EA with channel names and type
Eight	STRATNET Zone	S with channel name and type

## Change the Channels Manually

To switch between Channels, briefly press the **SOFT KEY** under the **CHAN** in display, using the **NAVIGATION KEYPAD** left / right arrows to scroll up and down through the channels. Stop at the desired channel and then press the **HOME BUTTON** or press **PTT**. This will lock you onto the desired channel.

Alternatively, briefly press the **SOFT KEY** under **CHAN** in display. Using the **NUMERICAL KEYPAD** enter the channel number, all digits, and then press the **HOME Button** or **PTT**. This will then lock you onto the desired channel.

*NB: Home Button - should you get lost in any of these navigations holding down the home button for 3 seconds (beeps twice) will take the radio back to your DTZ home vote group or DTZ Selected channel and you can start again.*

# Motorola XTS 2500





# RADIO OPERATION Motorola XTS 2500

## Turn the radio ON or OFF

Using **ON/OFF / VOLUME KNOB** rotate clockwise past the click point and the radio should come on with information in the display. If there is no display, battery may be flat, so replace or recharge battery. To turn **OFF**, rotate **ON/OFF / VOLUME KNOB** fully anticlockwise, past the click.

## Adjusting Speaker Volume

Rotate **ON/OFF / VOLUME KNOB** clockwise to about half way position as a good starting point and then adjust volume level to suit.

## Zone Change

To switch between Zones use the **ZONE KNOB**. Rotating the knob will change between Zones. As the Portable does not display the Zone name. You will need to observe the channel prefix. ie. P, GD, GA, F, ED, EA & S, as this indicates the Zone you are in (*Note: Zone knob will always override soft key selected zone*).

To switch between Zones briefly press the **SOFT KEY** under the **ZONE** in the display, using the **NAVIGATION KEYPAD** left / right arrows to scroll up and down through the Zones. Once you have reached your desired zone press the **HOME BUTTON** or **PTT**. This will lock you on to the desired Zone.

## THE ZONES ARE:

POSITION	ZONE	CHANNEL PREFIX
One	HOME Zone	contains locally determined channels applicable to your DTZ
Two	PMR Zone	P with channel number
Three	GRN DIGITAL Zone	GD with GRN P25 Digital talk group name
Four	GRN ANALOGUE	GA with GRN Analogue talk group name
Five	FIELD OPS Zone	F with channel name and type
Six	ESO DIGITAL Zone	ED with channel names and type
Seven	ESO ANALOGUE Zone	EA with channel names and type
Eight	STRATNET Zone	S with channel name and type

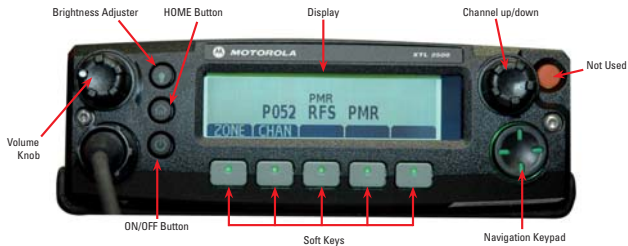
## Change the Channels Manually

To switch between Channels, briefly press the **SOFT KEY** under the **CHAN** in display, using the **NAVIGATION KEYPAD** left / right arrows to scroll up and down through the channels. Stop at the desired channel and then press the **HOME BUTTON** or press **PTT**. This will lock you onto the desired channel.

Alternatively, briefly press the **SOFT KEY** under **CHAN** in display. Using the **NUMERICAL KEYPAD** enter the channel number, all digits, and then press the **HOME Button** or **PTT**. This will then lock you onto the desired channel.

*NB: Home Button - should you get lost in any of these navigations holding down the home button for 3 seconds (beeps twice) will take the radio back to your DTZ home vote group or DTZ Selected channel and you can start again.*

# Motorola XTL 2500



# RADIO OPERATION Motorola XTL 2500

## Turn the radio ON or OFF

Briefly press **ON/OFF BUTTON**, radio is programmed to turn **ON** after about ten seconds.

To turn the radio **OFF** this button must be pressed and held for more than 2 seconds. (Note: that whenever power is isolated, then restored, radio will return to its previous state i.e. same Channel and Zone).

## Adjusting Speaker Volume

Using the **VOLUME KNOB** rotate to about 12:00 o'clock position. Adjust volume level to suit.

## Zone Change

To switch between Zones briefly press the **SOFT KEY** under the **ZONE** in the display. Using the **NAVIGATION KEYPAD** left / right arrows to scroll up and down through the Zones. Once you have reached your desired zone press the **HOME BUTTON** or **PTT** . This will lock you on to the desired Zone.

### THE ZONES ARE:

<b>POSITION</b>	<b>ZONE</b>	<b>CHANNEL PREFIX</b>
<b>One</b>	<b>HOME</b> Zone	contains locally determined channels applicable to your DTZ
<b>Two</b>	<b>PMR</b> Zone	<b>P</b> with channel number
<b>Three</b>	<b>GRN DIGITAL</b> Zone	<b>GD</b> with <b>GRN</b> P25 Digital talk group name
<b>Four</b>	<b>GRN ANALOGUE</b>	<b>GA</b> with <b>GRN</b> Analogue talk group name
<b>Five</b>	<b>FIELD OPS</b> Zone	<b>F</b> with channel name and type
<b>Six</b>	<b>ESO DIGITAL</b> Zone	<b>ED</b> with channel names and type
<b>Seven</b>	<b>ESO ANALOGUE</b> Zone	<b>EA</b> with channel names and type
<b>Eight</b>	<b>STRATNET</b> Zone	<b>S</b> with channel name and type

## Change the Channels Manually

Use the CHANNEL UP/DOWN knob to change to your desired channel.

*NB: Home Button - should you get lost in any of these navigations holding down the home button for 3 seconds (beeps twice) will take the radio back to your DTZ home vote group or DTZ Selected channel and you can start again.*

# Simoco SRM9022 Radio PMR (Red)



# RADIO OPERATION

## Simoco SRM9022 Radio UHF – PMR (Red)

### Turn the radio ON or OFF

Located at the front of the microphone handset there is a **RED ON/OFF** button. To turn the radio **ON** this button must be pressed and released. To turn the radio **OFF** this button must be pressed and held for more than 2 seconds then a **BEEP** will sound and the radio will turn off as the button is released.

### Adjusting Speaker Volume

Located on the top of the microphone are **UP** and **DOWN** buttons. These are labelled with a **+ / -** symbol. When these are pressed a beep will be heard. It increases in volume as the **UP** Button is pressed and decreases in volume as the **DOWN** button is pressed. Select your desired level using these beeps.

### Zone Change

Located on the face of the microphone to the left is a **SOFT KEY** labelled **M**. This button is configured as the **ZONE CHANGE** button and above in the display is the word **ZONE**. When this button is pressed the Zone may be changed by pressing the two buttons labelled **▼▲**. To activate the selected Zone press the **OK**, this selects the Zone in the display.

### Change the Channels Manually

Located on the face of the microphone are two buttons labelled **▼▲**. When the **UP** button is pressed the display will scroll **UP** through the channels. When the **DOWN** button is pressed the display will scroll **DOWN** through the channels. If these buttons are held down the scroll speed increases to allow for quicker channel selection. The channels can also be changed using the keypad by entering the channel number then pressing the **#** key.

### To Transmit

Press the **PTT** button located on the left side of the microphone. Whilst transmitting, the display will show a **→** to the right of the display and the TX/RX indicator will be **RED**. This shows that the radio is transmitting. Release the button when you have finished your message.

### To Receive

When a signal is received, the TX/RX indicator will be **GREEN** and audio can be heard from the radio speaker. This shows that the radio is receiving a transmission.

### UHF (RED) Radio Zones

This radio is fitted with eleven zones which include a number of external agencies frequencies and UHF-CB as follows:

- **RFS PMR** - Full RFS PMR profile
- **Field Ops** - RFS UHF Simplex and portable repeater frequencies
- **ESO** - Cross agency Simplex and portable repeater frequencies
- **Stratnet** - RFS strategic repeater channels
- **UHF CB** - Australian UHF CB channels
- **Queensland Fire** - Queensland (QFRS) PMR frequencies
- **NSW SES** - NSW SES PMR frequencies
- **Region East** – Vote Groups for each Region East DTZ
- **Region North** – Vote Groups for each Region North DTZ
- **Region South** – Vote Groups for each Region South DTZ
- **Region West** – Vote Groups for each Region West DTZ

# Simoco SRM9022 Radio Fireground (Blue)



# RADIO OPERATION

## Simoco SRM9022 Radio UHF – Fireground (Blue)

### Turn the radio ON or OFF

Located at the front of the microphone handset there is a **RED ON/OFF** button. To turn the radio **ON** this button must be pressed and released. To turn the radio **OFF** this button must be pressed and held for more than 2 seconds then a **BEEP** will sound and the radio will turn off as the button is released.

### Adjusting Speaker Volume

Located on the top of the microphone are **UP** and **DOWN** buttons. These are labelled with a **+ / -** symbol. When these are pressed a beep will be heard. It increases in volume as the **UP** button is pressed and decreases in volume as the **DOWN** button is pressed. Select your desired level using these beeps.

### Zone Change

Located on the face of the microphone to the left is a **SOFT KEY** labelled **M**. This button is configured as the **ZONE CHANGE** button and above in the display is the word **ZONE**. When this button is pressed the Zone may be changed by pressing the two buttons labelled **▼▲**. To activate the selected Zone press the **SOFT KEY** labelled **OK**, this selects the displayed Zone.

### Change the Channels Manually

Located on the face of the microphone are two buttons labelled **▼▲**. When the **UP** button is pressed the display will scroll **UP** through the channels. When the **DOWN** button is pressed the display will scroll **DOWN** through the channels. If these buttons are held down the scroll speed increases to allow for quicker channel selection. The channels can also be changed using the keypad by entering the channel number then pressing the **#** key.

### To Transmit

Press the **PTT** button located on the left side of the microphone. Whilst transmitting, the display will show a **→** to the right of the display and the TX/RX indicator will be **RED**. This shows that the radio is transmitting. Release the button when you have finished your message

### To Receive

When a signal is received, the TX/RX indicator will be **GREEN** and audio can be heard from the radio speaker. This shows that the radio is receiving a transmission.

### VHF (BLUE) Radio Zones

This radio is fitted with FOUR zones, as follows:

- **RFS Fire Ground** – Simplex 1 – 20 and repeaters 1 – 4 **NB: FG 11 and 12 embargoed from use**
- **CFA Victoria** - Full CFA PMR profile
- **CFS South Australia** – VHF Fire Ground Channels
- **VHF Marine** - Selected Marine Simplex frequencies.

NOTE: Marine radio channels are only to be used by marine fire vessels or when communicating with marine vessels.

# Simoco SRM9022 Radio Mid Band (Yellow)





# RADIO OPERATION

## Simoco SRM9022 Radio VHF Mid Band (Yellow)

### Turn the radio ON or OFF

Located at the front of the microphone handset there is a **RED ON/OFF** Button.

To turn the unit **ON** this button must be pressed and released.

To turn the unit **OFF** this button must be pressed and held for more than 2 seconds then a **BEEP** will sound and the radio will turn off as the button is released.

### Adjusting Speaker Volume

Located on the top of the microphone are **UP** and **DOWN** buttons. These are labelled with a **+ / -** symbol. When these are pressed a beep will be heard. It increases in volume as the **UP** button is pressed and decreases in volume as the **DOWN** button is pressed. Select your desired level using these beeps.

### Change the Channels Manually

Located on the face of the microphone are two buttons labelled **▼▲**. When the **UP** button is pressed the display will scroll **UP** through the channels. When the **DOWN** button is pressed the display will scroll **DOWN** through the channels. If these buttons are held down the scroll speed increases to allow for quicker channel selection. The channels can also be changed using the keypad by entering the channel number then pressing the **#** key.

### To Transmit

Press the **PTT** switch located on the left side of the microphone. Whilst transmitting, the display will show a **→** to the right of the display and the TX/RX indicator will be **RED**, this shows that the radio is transmitting. Release the button when you have finished.

### To Receive

When a signal is received, the TX/RX indicator will be **GREEN** and audio can be heard from the radio speaker. This shows that the radio is receiving a transmission.

### VHF Mid Band (Yellow) Radio

This radio is fitted with ONE continuous zone which includes as follows:

- **QFRS (Rural)** – QLD Fire Fireground channels (001 – 475)
- **Dept Environment & Conservation - NPWS** - Repeater and simplex channels (501 – 600)
- **Dept Primary Industries - Forest NSW** – Repeater and simplex channels (601 – 699)
- **ACT** – ACT Fire Service channels (801 – 895)
- **NSW RFS Field operations** - RFS VHF Mid Band Repeater and simplex channels (901-910)
- **SCA** - Sydney Catchment Authority VHF Mid channels (951-956)
- **NSW VRA** - Volunteer Rescue Association VHF Mid Band channels (990-999)

# Tait TM9154 Radio PMR (Red)



# RADIO OPERATION

## Tait TM9154 Radio UHF – Red

### Turn the radio ON or OFF

Located at the top of the Microphone handset there is a **ON/OFF** Button.

To turn the unit **ON** this button must be pressed and held for more than two seconds.

To turn the unit **OFF** this button must be pressed and held for more than two seconds

### Adjusting Speaker Volume

Located on the face of the microphone are an **+** and **-** button. These are labelled with a **+ / -** symbol. It increases the volume as the **+** button is pressed and decreases the volume as the **-** button is pressed.

### Zone Change

Located on the display is the word **ZONE** and below is a **SOFT KEY**. When this **SOFT KEY** is pressed the Zones may be changed by pressing the two buttons labelled **▼▲**. To activate the selected Zone simply press the **SOFT KEY** below **SELECT** in the display.

### Change the Channels Manually

Located on the face of the microphone are two buttons labelled **CHANNEL ▼▲**. When the **▲** button is pressed the display will scroll **UP** through the channels. When the **▼** button is pressed the display will scroll **DOWN** through the channels. The channels can also be changed using the keypad by entering the channel number then pressing the **SELECT SOFT KEY**.

### To Transmit

Press the **PTT** button located on the left side of the microphone. The TX/RX indicator will be **RED**, this shows that the radio is transmitting. Release the button when you have finished.

### To Receive

When a signal is received, the TX/RX indicator will be **GREEN** and audio can be heard from the radio speaker. This shows that the radio is receiving a transmission.

### UHF (RED) Radio Zones

This radio is fitted with ELEVEN Zones which include a number of external agencies frequencies and UHF-CB as follows:

- **RFS PMR** - Full RFS PMR profile
- **Field Ops**- RFS UHF Simplex and portable repeater frequencies
- **ESO** - Cross agency Simplex and portable repeater frequencies
- **Stratnet** - RFS strategic repeater channels
- **UHF CB** - Australian UHF CB channels
- **Queensland Fire** - Queensland (QFRS) PMR frequencies
- **NSW SES** - NSW SES PMR frequencies
- **Region East** – Vote Groups for each Region East DTZ
- **Region North** – Vote Groups for each Region North DTZ
- **Region South** – Vote Groups for each Region South DTZ
- **Region West** – Vote Groups for each Region West DTZ

# Tait TM9154 Radio Fireground (Blue)



# RADIO OPERATION

## Tait TM9154 Radio Fireground - Blue

### Turn the radio ON or OFF

Located at the top of the Microphone handset there is a **ON/OFF** Button.

To turn the unit **ON** this button must be pressed and held for more than two seconds

To turn the unit **OFF** this button must be pressed and held for more than two seconds

### Adjusting Speaker Volume

Located on the face of the microphone are an **+** and **-** button. These are labelled with a **+ / -**

symbol. It increases the volume as the **+** button is pressed and decreases the volume as the **-** button is pressed.

### Zone Change

Located on the display is word **ZONE** and below is a **SOFT KEY**. When this **SOFT KEY** is pressed

the Zones may be changed by pressing the two buttons labelled **▼▲**. To activate the selected Zone

simply press the **SOFT KEY** below **SELECT** in the display

### Change the Channels Manually

Located on the face of the microphone are two buttons labelled **CHANNEL ▼▲**. When the **▲**

button is pressed the display will scroll **UP** through the channels. When the **▼** button is pressed the display will scroll **DOWN** through the channels.

The channels can also be changed using the keypad by entering the channel number then pressing the **SELECT SOFT KEY**.

### To Transmit

Press the **PTT** button located on the left side of the microphone. The TX/RX indicator will be **RED**, this shows that the radio transmitting. Release the button when you have finished.

### To Receive

When a signal is received, the TX/RX indicator will be **GREEN** and audio can be heard from the radio speaker. This shows that the radio is receiving a transmission.

### VHF (BLUE) Radio Zones

This radio is fitted with FOUR zones, as follows:

- **RFS Fire Ground** – Simplex 1 – 20 and repeaters 1 – 4 **NB: FG 11 and 12 embargoed from use**
- **CFA Victoria** – Full CFA PMR profile
- **CFS South Australia** – VHF Fire Ground Channels
- **VHF Marine** - Selected Marine Simplex frequencies.

*NOTE: Marine radio channels are only to be used by marine fire vessels or when communicating with marine vessels.*

# Tait TM8254 Radio Mid Band (Yellow)



# RADIO OPERATION

## Tait TM8254 Radio VHF Mid Band - Yellow

### Turn the radio ON or OFF

Located at the top of the Microphone handset there is a **ON/OFF** Button.

To turn the unit **ON** this button must be pressed and held for more than two seconds

To turn the unit **OFF** this button must be pressed and held for more than two seconds

### Adjusting Speaker Volume

Located on the face of the microphone are an **+** and **-** button. These are labelled with a **+ / -** symbol. It increases the volume as the **+** button is pressed and decreases the volume as the **-** button is pressed.

### Change the Channels Manually

Located on the face of the microphone are two buttons labelled **CHANNEL ▼▲**. When the **UP** button is pressed the display will scroll up through the channels. When the **▼** button is pressed the display will scroll down through the channels.

The channels can also be changed using the keypad by entering the channel number then pressing the **SELECT SOFT KEY**.

### To Transmit

Press the **PTT** button located on the left side of the microphone. The TX/RX indicator will be **RED**, this shows that the radio is transmitting TX/RX. Release the button when you have finished.

### To Receive

When a signal is received, the TX/RX indicator will be **GREEN** and audio can be heard from the radio speaker. This shows that the radio is receiving a transmission.

### VHF Mid Band (Yellow) Radio Zone

This radio is fitted with ONE continuous zone which includes as follows:

- **QFRS** – QLD Fireground channels (001 – 475)
- **Dept Environment & Conservation - NPWS** - Repeater and simplex channels (501 – 600)
- **Dept Primary Industries - Forest NSW** – Repeaters and simplex channels (601 – 699)
- **ACT** - ACT Fire Service channels (801– 895)
- **NSW RFS Field Operations** - RFS VHF Mid Band Repeater and simplex channels (901-910)
- **SCA** – Sydney Catchment Authority channels (951 – 956)
- **NSW VRA** - Volunteer Rescue Association VHF Mid Band channels (990-999)

# Critical Incident Support Services (CISS)



The role of CISS is to provide support to all members, as individuals or as a group, of the NSW Rural Fire Service, including Volunteers and Staff who may be experiencing a critical incident stress reaction following an operational incident.

Members are affected in different ways by incidents and it is the reaction of the individual, which makes the incident critical.

Support and assistance, 24 hours a day, may be:

- On-scene during protracted incidents
- Individual support and assistance
- Less formal defusing soon after the incident (Immediate Small Group Support)
- Debriefing two to twenty one days after the incident (Powerful Event Group Support)
- Facilitate ongoing support as required
- In person or by telephone

Total confidentiality is maintained and no information regarding name, personal reactions, feelings, problems or behaviour will be recorded or disclosed unless it is required by law, to sustain life, or it is the expressed wish and with the consent of the individual concerned.

## Contact Procedures

The CISS Duty Officer, who is supported by more than 40 specially trained Volunteers and Staff, may be contacted through State Operations on:

# 1800 049 933



# Chaplaincy & Family Support

The role of the Chaplain is to minister to the spiritual welfare (irrespective of religion or denominational affiliation) of all members of the NSW Rural Fire Service, including Volunteers and Staff and their families and includes the provision of morale and welfare support for:



- The death of any member of the Service in the line of Duty
- Serious injury and hospitalisation of any member whilst on Duty
- Death of any member or member's next of kin
- A member or a member's next of kin transferred to Sydney for hospitalisation, or to any major Regional hospital within NSW or the ACT
- Members at an incident involving fatalities at the Senior Chaplain's or Senior Officer's request
- Members at any protracted search and rescue operation involving Rural Fire Service Personnel
- Members at extended operations, during s44 bush fire or other emergencies at the request of State Operations, the Region, the Incident Controller or the Senior Chaplain
- Members at any other incident where Senior Operations Staff require the attendance of the Chaplain

## Contact Procedures

The Senior Chaplain, **Major Ron Anderson**, and Senior Family Support Chaplain, **Major Carol Anderson**, who are supported by more than 60 Volunteer Chaplains, may be contacted through State Operations on:



# 1800 049 933

# Beaufort Scale

Beaufort	km/h	Land Specification	Title	Knots
0	Less than 1	Smoke rises vertically	Calm	0
1	1-5	Smoke drifts slowly	Light Air	1-3
2	6-11	Wind felt on face Leaves rustle Flags flap	Light Breeze	4-6
3	12-19	Leaves and small twigs in constant motion Flags extended	Gentle Breeze	7-10
4	20-29	Raises dust and loose paper Small branches are moved	Moderate Breeze	11-16
5	30-39	Small trees begin to sway	Fresh Breeze	17-21
6	40-49	Large branches in motion Wires whistle Umbrellas used with difficulty	Strong Breeze	22-27
7	50-61	Whole trees in motion Walking against the wind impeded	Near Gale	28-33
8	62-74	Twigs break off trees	Gale	34-40
9	75-88	Slight structure damage	Strong Gale	41-47
10	89-102	Seldom experienced inland Trees uprooted Much structural damage	Storm	48-55
11	103-117	Very rare Widespread damage	Violent Storm	53-63
12	More than 118	Severe & extensive damage	Hurricane	64+

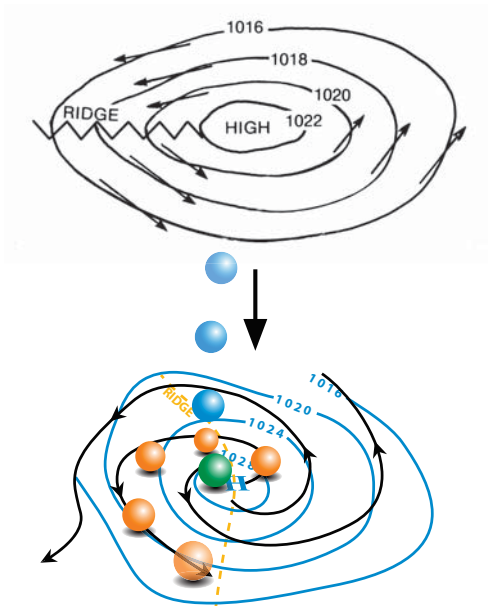
**Note: 10 minute average at a height of 10 metres**

# Weather 1

## High Pressure System

High pressure systems provide dry, warm weather with the possibility of a lead up to critical fire weather. Winds circulate anti-clockwise.

### Isobars showing a typical area of high pressure



©BOM

(High) Sinking air near the surface spreads out.

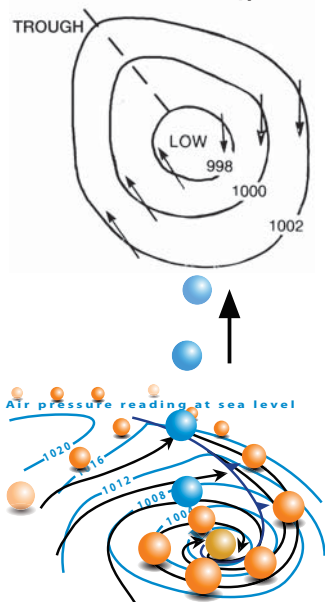
# Weather 2

## Low Pressure System

Low pressure systems provide cool, cloudy, windy and unstable conditions.

Winds circulate clockwise

### Isobars and winds of a typical low



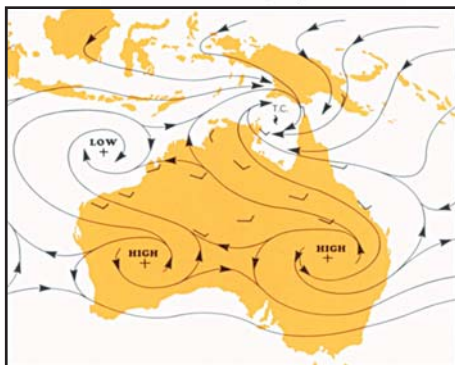
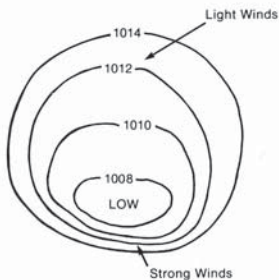
©BOM

**(Low) Converging air near the surface rises.**

# Weather 3

## Wind Strength

### Wind strength according to pressure gradient

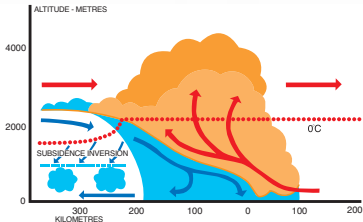


©BOM

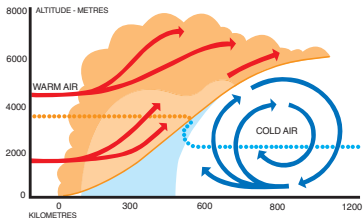
Streamlines show the direction of wind flow around highs and lows

## Weather 4 **FRONTAL SYSTEMS**

When one air mass moves into an area occupied by another, the two do not mix substantially unless their temperature and moisture are similar. A boundary zone known as a front forms between the two. The cold front is generally the most active.



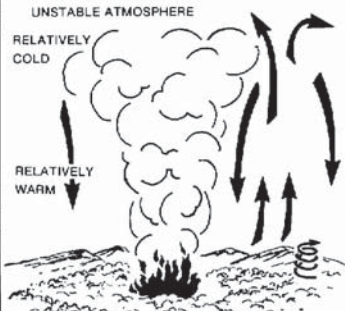
**Diagrammatic cross section of a typical cold front**



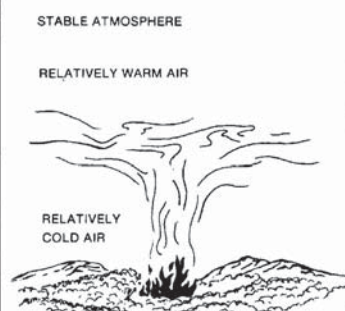
**Diagrammatic cross section of a typical warm front**

# Weather 5

## UNSTABLE ATMOSPHERE

<p>UNSTABLE ATMOSPHERE</p>  <p>RELATIVELY COLD</p> <p>RELATIVELY WARM</p>	<p>Clouds grow vertically and smoke rises to great height</p> <p>Cumulus type clouds</p> <p>Upward and downward currents gusty wind</p> <p>Good visibility</p> <p>Dust whirls</p>
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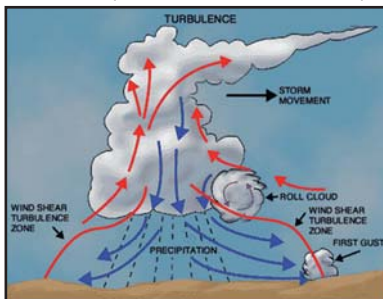
## STABLE ATMOSPHERE

<p>STABLE ATMOSPHERE</p>  <p>RELATIVELY WARM AIR</p> <p>RELATIVELY COLD AIR</p>	<p>Clouds in layers</p> <p>No vertical motion</p> <p>Stratus type clouds</p> <p>Smoke column drifts apart after limited rise</p> <p>Poor visibility in lower levels due to accumulation of smoke and haze</p> <p>Fog layers</p> <p>Steady winds</p>
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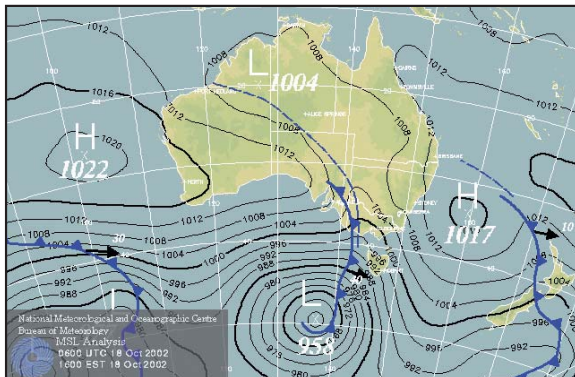
©BOM

# Weather 6

## DOWNBURST (MICROBURST OR MACROBURST)



Normally associated with thunderstorm cells. Cool dense air that sinks rapidly out of a downburst spreads out rapidly in all directions typically 80kph but can be up to 270kph causing a dangerous situation for firefighters.



**Summer Heatwave - hot NW winds from inland Australia  
A typical dangerous fire weather situation**



# Media



The RFS uses the media to distribute public information during emergencies and promote the image of the volunteers. The media is a vital partner in ensuring the public and community are well informed.

A large proportion of media personnel across NSW have been trained by the RFS to work in and around bush fires. Trained media personnel are aware of how the RFS manages bush fires and the associated dangers.

Media are required to wear full PPE and carry an identification card when attending the fireground.

Access to the fireground is at the discretion of the Incident Controller. News crews should be given all reasonable assistance to accurately inform the community of incidents of interest.

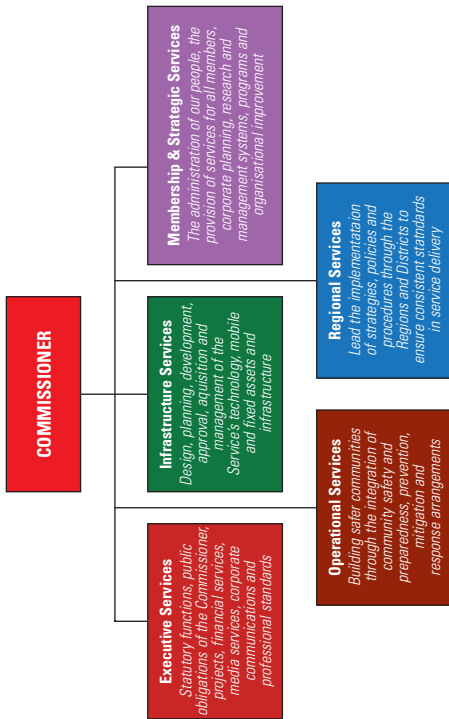
**Media comment may only be made by the Incident Controller in compliance with Service Standard 1.1.6 Media Relations to ensure accurate information is provided.**

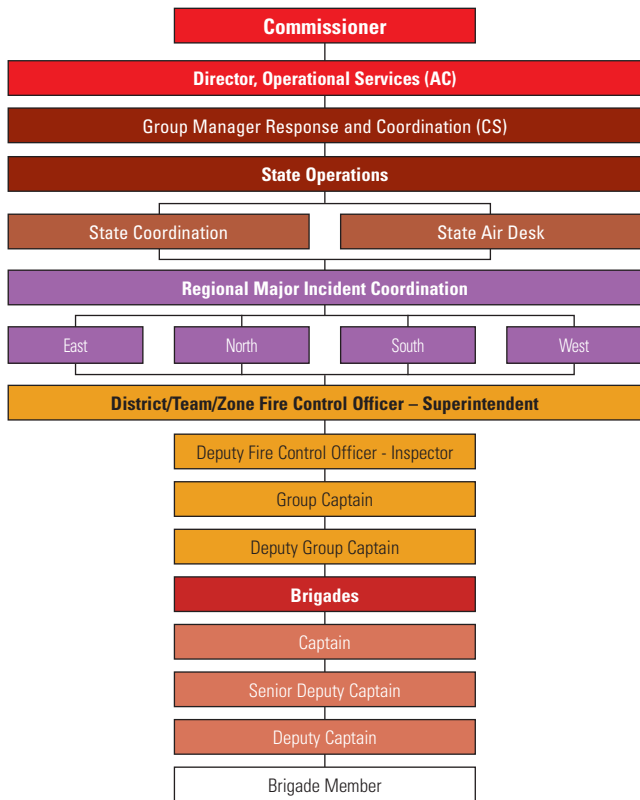
Volunteers must not comment to the media on any issue where those comments may be perceived as being the view or position of the Service.

All issues relating to media must be brought to the attention of the District/Team/Zone Manager via the Incident Controller.

- If you are asked to comment on political issues regarding the RFS, refer the media to the FCO/District/Team/Zone Manager or the Incident Controller
- If you are asked to comment about the overall strategy for a fire or incident refer the media to the Incident Controller
- You may provide general comments on what conditions are like or how you feel at an incident, for example 'It is extremely hot and the winds are erratic', 'It's tiring work and we can't wait for the cool change' or 'We are raking a trail down Blue Gum Valley towards Green Creek'.

**RFS State Duty Media Officer (02) 9898 1855**





# Combat Agency Functions

## State Emergency and Rescue Management Act, 1989

The State Emergency and Rescue Management Act sets out the State arrangements for Emergency Management and Rescue Management. Under the provisions of the SERM Act, the State recognises three levels of management, which are State, District and Local Levels. All three levels are required to prepare and maintain a Disaster Plan (Displan) for the Prevention, Preparation, Response and Recovery of emergency events. The arrangements outlined within these plans can be used to support Combat Agency Operations or Emergencies.

### Local Level (by Local Government Areas)

- LEMC** Local Emergency Management Committee chaired by a Local Government Representative
- LEOC** Local Emergency Operations Centre
- LEOCON** Local Emergency Operations Controller – Senior member of the NSW Police Force in the Local Government Area
- LEMO** Local Emergency Management Officer – Executive Support provided by the Council
- Local Displan** Prepared for each Local Government Area and also includes Evacuation and Road Closure sub-plans

An emergency is defined as an actual or imminent occurrence which:

- a) endangers, or threatens to endanger, property in the State, the safety or health of persons or animals in the State, or.
- b) Destroys or damages, or threatens to destroy or damage, property (which includes any part of the environment) in the State, being an emergency which requires a significant and coordinated response.

**Note:** The RFS is the combat agency for rural fires (Class 1, 2 or 3) and under the SERM Act, assistance from other combat agencies and support agencies may be requested and provided.

# Combat Agencies

<b>NSW Police Force</b>	<ul style="list-style-type: none"> <li>• Combat Agency for all aviation accidents</li> <li>• Responsible for emergencies where there is no Combat Agency</li> <li>• Responsible for all rescue coordination</li> <li>• Provide accredited rescue units in defined local areas</li> <li>• Support other combat agencies when requested</li> <li>• Provide SEOCON, DEOCON &amp; LEOCON under SERM Act</li> </ul>
<b>NSW Fire Brigades</b>	<ul style="list-style-type: none"> <li>• Combat Agency for urban fires (in the Fire District) and HazMats (State wide)</li> <li>• Provide accredited rescue units in defined local areas</li> </ul>
<b>State Emergency Service</b>	<ul style="list-style-type: none"> <li>• Combat Agency for floods, storms, tempest, tsunami and flood rescue</li> <li>• Provide accredited rescue units in defined local areas</li> </ul>
<b>Rural Fire Service</b>	<ul style="list-style-type: none"> <li>• Combat Agency for rural fires (in the Rural Fire District and declarations under s44)</li> </ul>
<b>Volunteer Rescue Association</b>	<ul style="list-style-type: none"> <li>• Provide accredited rescue units in defined local areas</li> </ul>
<b>Ambulance Service of NSW</b>	<ul style="list-style-type: none"> <li>• Provide medical treatment and transportation</li> <li>• Provide accredited rescue units in defined local areas</li> </ul>
<b>Mines Rescue</b>	<ul style="list-style-type: none"> <li>• Provide rescue services at designated mines</li> </ul>
<b>NSW Maritime / Port Authority</b>	<ul style="list-style-type: none"> <li>• Responsible for clean up operations within their area of responsibility</li> </ul>
<b>Industry &amp; Investment NSW</b>	<ul style="list-style-type: none"> <li>• Combat Agency for exotic animal and plant diseases</li> </ul>

**Commissioner****Assistant  
Commissioner****Chief  
Superintendent****Superintendent****Inspector****Group  
Captain****Deputy Group  
Captain****Captain****Senior Deputy  
Captain****Deputy  
Captain****Member****Communications  
Captain****Communications  
Senior Deputy Captain****Communications  
Deputy Captain****Communications  
Member**



**Catering  
Captain**



**Catering Senior  
Deputy Captain**



**Catering  
Deputy Captain**



**Catering  
Member**



**Cadet  
Coordinator**



**Cadet Deputy  
Coordinator**



**Cadet  
Instructor**



**Cadet Adult  
Member**



**Cadet  
Captain  
(Green)**



**Cadet Senior  
Deputy Captain  
(Green)**



**Cadet Deputy  
Captain  
(Green)**



**Cadet  
(Green)**

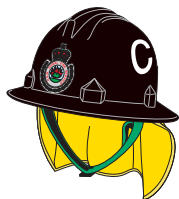


**Senior Chaplain**



**Chaplain**

**Apart from the epaulettes shown, no other epaulettes shall be used. Epaulettes supplied through the Rural Fire Service are proban treated.**



**Commissioner**



**Assistant  
Commissioner**



**Chief  
Superintendent**



**Superintendent**



**Inspector**



**Group Captain**



**Deputy  
Group Captain**



**Captain**



**Senior  
Deputy Captain**





**Deputy Captain**



**Member**



**Trainee**



**Training Instructor**



**Communications  
Captain**



**Communications  
Senior Deputy Captain**



**Communications  
Deputy Captain**



**Communications  
Member**



**Catering Captain**



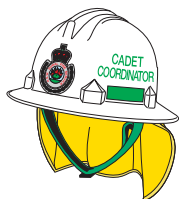
**Catering Senior  
Deputy Captain**



**Catering  
Deputy Captain**



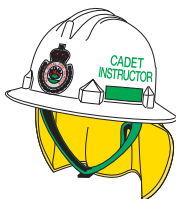
**Catering Member**



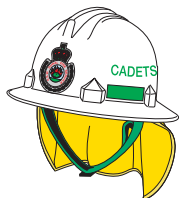
**Cadet  
Coordinator**



**Cadet Deputy  
Coordinator**



**Cadet  
Instructor**



**Adult Cadet Member  
and Cadet**



**Junior Member**



**Fire Investigation**



**RFS Media Officer**



**RFS Media Liaison**



**Media**



**Chaplain**



**Critical Incident Support Services**



**Surname Back of Helmet**

Names on helmets are optional but if used, the name shall be placed centrally across the back of the helmet as low to the base as possible. Names shall be the Surname (Last Name) only in Helvetica Narrow Bold 25mm high x maximum 140mm long in reflective lettering 3M 680 CR or equivalent. (Black lettering for White, Orange and Yellow helmets, White lettering for Red, Black, Blue and Purple helmets and Green lettering for Cadet, Junior and CISS).

Yellow fluorescent and retroreflective tape supplied and affixed to all new helmets (bush fire and structural) is not to be removed or obscured.

**Apart from the markings noted above NO other markings shall appear on RFS helmets**

**INCIDENT MANAGEMENT TEAM****Incident Controller****Deputy Incident Controller****Safety Advisor****Public Liaison Officer****Operations Officer****Planning Officer****Logistics Officer****Community Liaison****Divisional Commander****Plant Manager****Catering Manager****RFS Media Liaison****Sector Commander****Plant Supervisor****Catering****RFS Photographer**

## INCIDENT MANAGEMENT TEAM



**Air Operations  
Manager**



**Base Camp  
Coordinator**



**Response Team  
Coordinator**



**Media  
Escort**



**Air Base  
Manager**



**Staging Area  
Coordinator**



**Strike Team  
Leader**



**Management  
Support**



**Aircraft  
Officer**



**Security**



**Icon  
Data Entry**



**Air Base  
Safety Advisor**

## OTHER TABARDS



**Fire Investigation**



**Bush Fire Impact Analysis & Research**



**Chaplain**



**Critical Incident Support Services**



**Breathing Apparatus Control Officer**



**Fireground Incident Controller**  
for Class 1 incidents where RFS is the primary combat agency



**Fireground Operations Officer**  
for Class 1 incidents where NSWFB is the primary combat agency and RFS undertakes the operations role



**RFS Commander**  
for joint agency operations



**RFS Liaison Officer**



**RFS Safety Visibility Vest**

Apart from the tabards and brassards shown, **NO** other tabards and brassards shall be used.

# Vehicle Categories 1

(nominal weights & dimensions)



## ■ Category 1 (Isuzu or Hino)

---

Heavy Bush Fire Tanker

**Weight:** 13,700kg

**Length:** 7,800mm

**Height:** 3,100mm + Aerials

**Width:** 2,400mm

**Water Capacity:**

Village - 3,500 litres

Grassland - 4,500 litres



## ■ Category 2 (Also in single cab) (No longer manufactured)

---

Medium Bush Fire Tanker

**Weight:** 10,000kg

**Length:** 7,600mm

**Height:** 3,050mm + Aerials

**Width:** 2,400mm

**Water Capacity:** 1,601-3,000 litres



## ■ Category 6 (Isuzu or Hino)

---

Heavy Bush Fire Tanker - Single Cab

**Weight:** 22,500kg

**Length:** 7,900mm

**Height:** 3,000mm + Monitor & Aerials

**Width:** 2,450mm

**Water Capacity:** 11,000 litres

# Vehicle Categories 2



- **Category 7 (Isuzu)**  
(Also in single cab)

---

Light Bush Fire Tanker - Crew Cab

**Weight:** 6,500kg

**Length:** 6,250mm

**Height:** 2,600mm + Aerials

**Width:** 2,230mm + Mirrors

**Water Capacity:** 1,200 litres



- **Category 9 (Toyota)**

---

Striker/Mop-up

**Weight:** 3,620kg

**Length:** 5,300mm

**Height:** 2,180mm + Aerials

**Width:** 1,800mm

**Water Capacity:** 600 litres



- **Pumper (Hino)**

---

Category 11 Urban Pumper

**Weight:** 13,700kg

**Length:** 8,150mm

**Height:** 3,200mm + Aerials

**Width:** 2,450mm

**Water Capacity:** 3,000 litres



# Vehicle Categories 3



## ■ Bulk Water (Isuzu or Hino)

---

Category 13 Bulk Water

**Weight:** 22,500kg

**Length:** 7,900mm

**Height:** 3,100mm + Aerials

**Width:** 2,450mm

**Water Capacity** 11,000 litres



## ■ PC (Toyota Hilux)

---

Category 12 Personnel Carrier

**Weight:** Varies

**Length:** 5,130mm

**Height:** 2,000mm + Aerials

**Width:** 1,760mm



## ■ OCV (Light) (Sprinter)

---

Category 19 Operational Command Vehicle, Light

**Weight:** 4,490kg

**Length:** 6,945mm

**Height:** 3,500 overall

**Width:** 1,993mm

# Conversion Table

## Distance

1km = 1,000m = 0.62 miles

1.61 km = 1 mile

## Area

1 hectare = 10,000 sq m = 2.47 acres

0.405ha = 1 acre

100ha = 1 sq km

2.59 sq km = 1 sq mile

## Volume (liquids)

4.55 litres = 1 gallon

1,000 litres = 1 cubic metre = 1tonne = 220 gallons

1 litre (water) = 1 kilogram

## Speed

1km/hour = 0.54 knots = 0.62 miles/hour

1.85 km/hour = 1 knot = 1.15 miles/hour

1 knot = 1 nautical mile/hour

1 nautical mile = 1 minute of latitude along any meridian

## Temperature

$^{\circ}\text{C} \times 9/5 + 32 = ^{\circ}\text{F}$

$(^{\circ}\text{F} - 32) \times 5/9 = ^{\circ}\text{C}$