



National  
Defence

Defense  
nationale

A-GA-050-016/AG-000

## SPOTTERS GUIDE

(BILINGUAL)

(Supersedes A-GA-050-016/AG-000 dated 2003-06-01)

Issued on Authority of the Chief of the Defence Staff

OPI: DAR 2-5

2010-03-22

Canada

**FOREWORD**

1. A-GA-050-016/AG-000, Spotters Guide, is issued on Authority of the Chief of the Defence staff.
2. A-GA-050-016/AG-000 is effective on receipt and supersedes A-GA-050-016/AG-000, Spotters Guide, dated 1 June 2003.
3. Suggestions for amendments shall be forwarded through normal channels to the Chief of the Defence Staff, Attention Directorate Air Requirements.

## INTRODUCTION

1. The purpose of this brief is to provide a guide for personnel who have been appointed as spotters for this air search operation.
2. Primarily, you should recognize the importance of your job and endeavour to do your best. The success of an air search depends largely on the efficiency with which you as a spotter do your part. Keep in mind that your one aim and purpose is to locate the "OBJECT" of the search as soon as possible. This could mean the saving of lives – and the prevention of a large, prolonged, and costly search.
3. The primary responsibility of the normal aircraft crew is the safe operation of the aircraft, a task which at times, will require their full attention, leaving little or no time for actual visual search. It should be obvious, then, that your constant surveillance is needed.

## BRIEFINGS

4. The searchmaster or aircraft captain will brief you prior to search operations, Pay particular attention to all pertinent information regarding the "OBJECT" of the search – type of aircraft, colour, trim, etc. The captain will brief you on the correct aircraft emergency procedures – ditching or forced landings. Be sure you

understand them. If an emergency occurs, remain calm, and be prepared to act quickly under the direction of any member of the crew. The captain will also tell you the scanning or visibility range to use.

#### **FITNESS, VISION AND CLOTHES**

5. It is vital to any air search that all spotters be physically fit to perform their duties. If you have a cold, are overly tired, or otherwise below normal fitness, you will not be able to carry out your duties with the high degree of efficiency required. It is, therefore, in the best interests of all concerned for spotters who are below normal physical fitness to remain on the ground.

6. Spotters should ensure they are not colour blind and have good vision to detect possible small objects on the ground or in the water.

7. Spotters must wear clothes that are appropriate for the outside environment, carry a small personal survival kit, extra personnel clothes in case of longer searches and carry sunglasses when required.

#### **WHAT TO LOOK FOR**

8. In a search for a missing aircraft, you should realize that it may not be found as a whole. Thus, you should be alert for wreckage only, perhaps bits and pieces of metal or fabric. These are likely to be seen as

shining objects in the trees, or on the side of a hill or mountain, on the snow, or in some cases, as dark objects on an all snow surface.

9. Few aircraft have parts of the structure painted red or some bright colour which is easy to see against a green or white background. Some aircraft are supplied with survival equipment, much of which is bright red, orange, or yellow and may be seen strewn about in the wreckage or, if there are survivors, it may be arranged in an orderly pattern to provide an appropriate signal.

10. In many parts of Canada, much of the terrain is densely wooded. It is possible that an aircraft or the wreckage of an aircraft may become completely covered by trees and undergrowth. Should this happen, the only clue may be newly broken trees, a swath cut in the forest, fresh evidence of a fire, or a fire itself. The fire may be large, small, flaming, or just smoking. Any such clue should be fully checked.

11. With heavy coverage in hilly or mountainous country, the aircraft may be completely covered by the new snow slides, therefore avalanches, furrows, or other disturbances in the snow should receive your attention.

12. Where military aircraft are involved, the crew may have bailed out. Look for white or orange and white

parachutes hanging in trees or spread out on the ground. Over water areas look for floating wreckage, yellow dinghies, oil slicks, or greenish-yellow dye marker in the water or along the shore.

13. Military personnel will likely remain near the scene of the crash, but civilians may attempt to walk out. Watch closely for signs of people or any signals which may be displayed to indicate their intended direction of travel.

14. If there are survivors, they will likely put out signals. The following is a list of common signals in use and any one or combination of several should be checked immediately:

- a. a fire, large or small, smoke or flames;
- b. a group of three fires (flame or smoke) forming a triangle;
- c. black smoke;
- d. red smoke;
- e. a single torch tree;
- f. a very cartridge, any colour;
- g. a red fusie on the ground;
- h. a flashlight being flashed on or off;
- i. sunlight being reflected off shiny metal or a heliograph mirror;

- j. coloured or white panels on the ground;
- k. messages stamped out in the snow;
- l. messages printed on snow, in a field or on sand with spruce boughs, small trees, rocks, or sod;
- m. shelters made of parachutes or brush; and
- n. signs of life around seemingly abandoned buildings.

15. Keep in mind that any wreckage or signals might be difficult to see and once seen are easily lost if not kept under close observation. What might be considered a large camp fire by a survivor may appear to you in the air as only a match flicker. Remember that signals or signs of life may be seen only once and checking them properly may mean the difference between life and death to survivors. Notify the captain at once.

#### **SEARCH FOR LOST PERSONS**

16. Lost persons are probably the most difficult search "OBJECT" due mainly to their size, relative to rugged terrain. When acting as a spotter for missing persons, look for any of the aforementioned signals. Maintain a sharp lookout along rivers, near lakes or in clearings, as these are likely places for people to remain, or make for, when they become lost.

#### SEARCH FOR MARINE VESSEL

17. Marine vessels will vary in size from small motor boats to ocean going vessels. They may be lost or disabled, in open water, or driven on to shores and beaches.

18. In the case of the larger vessels, their approximate locations and the degree of distress is normally known and they, therefore, don't present the more difficult search problems common to smaller craft.

19. In the case of smaller vessels, the search commences from their last known position and covers the possible open water area and then along all shore and coast lines to which they might be drifted.

20. When searching shore lines, look for wreckage and any signals which may have been put out by survivors. These will likely be similar to those signals already described. On open water, look for a whole vessel as well as one which might be overturned or broken up. Anything floating should be reported to the captain and checked out. Oil slicks often provide a clue for locating sunken vessels. Be on the look out for life rafts and individuals afloat with life jackets or clinging to wreckage.

21. Marine searches are normally conducted at low altitudes and, therefore, require the spotter to be



more alert and to scan much faster than at higher altitudes. If the sea is rough, objects are difficult to see and are easily lost again unless kept under close observation.

#### SCANNING

22. The most important element of scanning is the ability to concentrate and maintain interest in the task. Locating the object on the ground should be the one thought in mind.

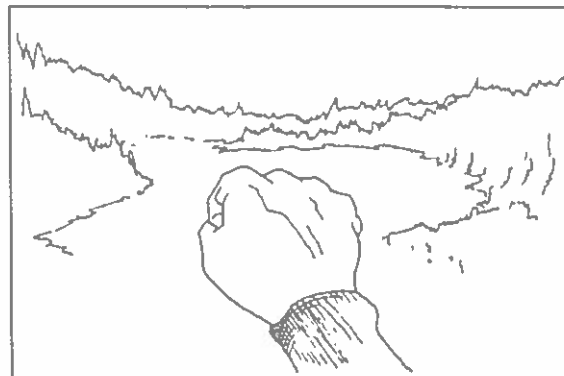
23. The concentration required is fatiguing. Constant scanning is tiring to the eyes. It is, therefore, imperative that spotters take regular rest periods if peak efficiency is to be maintained. These rests make it necessary for spotters to work in shifts so that during every second of the flight at least two spotters, one on either side of the aircraft, are searching.

#### NOTE

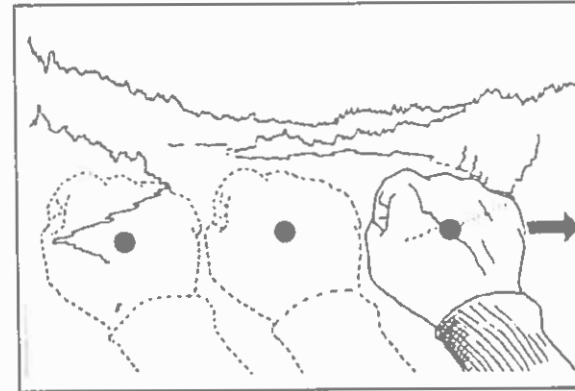
No reading while resting and normal spotter rotations is 20 to 30 minutes.

24. Except when we detect movement to one side or the other of our field of view or when the eyes detect objects which contrast with the surrounding environment, our seeing is restricted to a very small area. Most of what we see falls within an area which

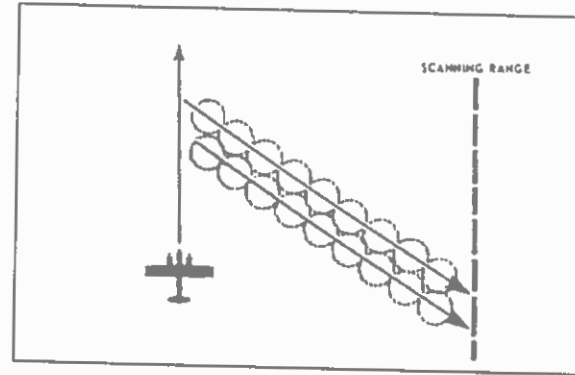
would be covered by our fist when held at arm's length.  
We do not see things clearly which are located outside  
of the area.



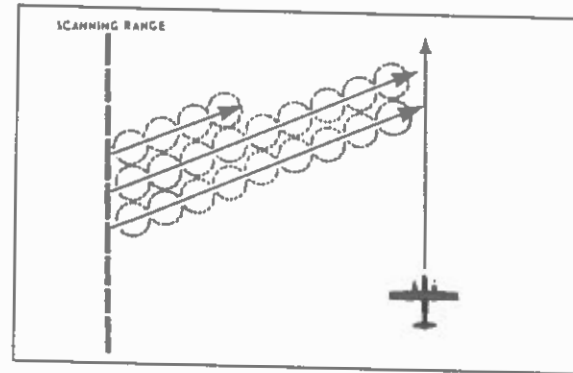
25. When we wish to scan a large area of ground, the eyes must move from one point to another, resting at each point momentarily so that the eyes are fixated or focussed in the centre of each adjacent area. If we swing our arm across our line of sight, we can imagine that we are looking through the back of our fist, pausing, then moving the fist to an adjacent position, and looking again. If the eyes move in this way and are focussed at the centre of each new area, the entire ground can eventually be scanned thoroughly.



26. When we are spotting from the right side, the entire ground area to be searched can be covered if we first look forward and below the aircraft. Then moving from left to right, as in reading, the eyes are moved across the ground in a series of movements each of which is intended to enable the eye to pause and see what is on the ground within a small area. This area is what would be just covered by your fist held at arm's length. When the scanning range is reached the eyes are returned to the starting position, and the scanning begins again. One of the crew will tell you how far ahead of the aircraft to look and distance out from the side of the aircraft – the scanning range – which will mark the end of each sweep.



27. If you sit on the left hand side of the aircraft, you will still be scanning from left to right but your line of scan will run from the scanning range in towards and ahead of the aircraft.



28. With practice, you should learn to cover the ground between the aircraft and the scanning range at a constant rate. How quickly you must scan will depend on the speed of the aircraft. The important point to remember is that you must complete one scan and return your eyes to the next starting position quickly enough so that the next scanning sweep is just forward but adjacent to the last. The forward movement of the aircraft will in effect move the next line of scan into position for you.

29. At the beginning of the flight, when the aircraft is at the altitude from which the searching will be done, hold your fist at arm's length and look past it to a point on the ground ahead of the aircraft where you would begin each scan. Estimate the time it takes until your fist covers the new adjacent area of ground. The time taken is the amount of time you will have to complete each scan line. It will vary depending on the speed of the aircraft and the altitude but will usually be between two and eight seconds. Regardless of the time available for scanning, it is important that your eyes do not simply sweep in a continuous motion. They should be moved from one point to the next, pausing momentarily at each point.

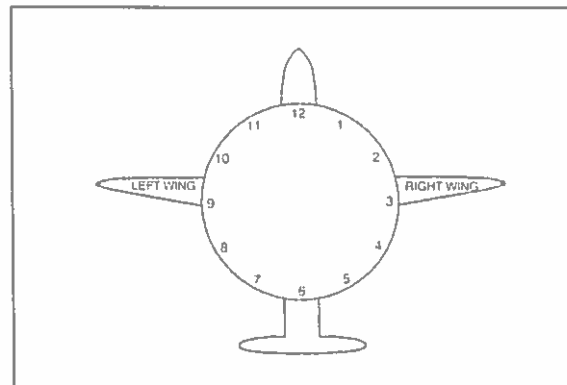
#### **REPORTING TO THE CREW**

30. If you spot anything which you believe to be the search object, fix its location relative to surrounding geographical features. Report the position to the pilot

using the clock system, and give the approximate distance from search aircraft. It is very important not to lose sight of the search object. The first thing you should say is LEFT/RIGHT turn. Don't dismiss any possible clues for fear that you have made a mistake. It may be the real thing and proper identification could save a life. It is better to report a suspicious object that may prove false than to assume it is wrong and not report it.

**UPON SIGHTING TARGET – 4 POINTS**

1. Turn (Left or Right)
2. Clock position
3. Distance
4. Describe target using ground features  
BIG to small



**AIR SICKNESS**

31. If you know you are prone to air sickness, do not try to be a spotter. If you should become airsick, ask one of the other spotters to take your place and report your condition to the captain, who will, whenever possible, return you to base. Don't try to carry on as you will only waste the efforts of the whole crew.

**CONCLUSION**

32. One cannot describe the personal gratification felt when one is instrumental in finding the survivors of an air crash. So, when acting as a spotter, search as intently as you would wish someone to search for you.

**SPOTTER ROTATION IN SAR AIRCRAFT**

1. This procedure is for fixed wing SAR aircraft. The Cormorant and the Griffon do not have the room to apply this procedure.
2. The active spotter is currently doing the duty. He will continue as the active spotter until he is given the thumbs up from the new spotter, which is the accepted method of indicating that he is now the active spotter.
3. The new spotter should make sure his headset is properly adjusted before they approach the spotter position. They should also be on time for their shift.
4. If the new spotter has an intercom cord, he should indicate so by telling the active spotter. Otherwise, he should expect the active spotter to disconnect his intercom cord and hand it over.
5. The new spotter approaches the active spotter from either direction. The side on which the active spotter gets the tap is the direction he is to expect the new spotter to come from.
6. After handing over the intercom cord (if required), the active spotter should vacate the seat away from the direction in which the new spotter is coming from. The new spotter should then install himself in the seat and adjust it accordingly.
7. The now active spotter should immediately proceed to do an intercom check and request a distance check. He will then relieve the active spotter with a thumb up.



ANNEX A

GROUND – AIR EMERGENCY CODE

GROUND TO AIR SIGNALS

Use strips of fabric, parachutes, peeled logs, sods, stones, or branches in snow. Try to provide maximum contrast. All figures should be at least 40 feet in length. Symbols may be used in combination.

Require Assistance	ICAO Symbols	V
Require Medical Assistance		X
No or Negative		N
Yes or Affirmative		Y
Am Proceeding in this Direction		→
As is Well	Additional Canada Only	LL*
Require Food and Water		F
Require Fuel and Oil		L
Require Repairs		W

\* A space of 10 feet between symbols if possible.

NOTES

Aircraft Type:

---

---

Aircraft Description:

---

---

---

---

---

---

---

---

---

---

A2

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000