

## WRECKAGE DISTRIBUTION DIAGRAM

### 1. Aviation Accidents:

a. The Wreckage Distribution Diagram depicts the location of all components in their post-crash/accident positions. Diagramming of the accident site should begin as soon as possible after arrival. No one is allowed into the secured area until the locations of all components are accounted for and marked. The Board should consider using post or local engineer survey assets, when available, to conduct a to-scale site survey.

b. The information collected from the accident site is documented on DA Form 2397-5, Part VI, Wreckage Distribution. It is impractical to diagram every piece of wreckage strewn about a crash site, select and diagram key impact points, obstacles struck by the aircraft, major components and significant pieces of wreckage (large or small) that present a clear image of the crash site.

#### (1) General information:

- (a) Orient the flight path (at the instant of initial impact) along the horizontal or vertical axis of the page.
- (b) Show the direction of true north near the top of the page.
- (c) Co-located with the north arrow, show wind speed and direction with an arrow pointed in the direction of the wind flow. Annotate the wind velocity in knots and direction in degrees.
- (d) Indicate the scale used for the drawing, if no scale is used; indicate that in block 1 of DA Form 2397-5.

#### (2) Use the grid to show:

- (a) Location of all aircraft major and significant components.
- (b) Obstacles struck by aircraft in crash sequence. For example, structure, trees, power lines.
- (c) Terrain marks made by aircraft in crash sequence. For example, earth gouge length, width, and depth, snow or earth pushed in front of aircraft.
- (d) A profile view of the wreckage distribution, especially if the impact occurs on sloped terrain or on obstacles in the flight path.
- (e) If necessary, use more than one form to show the profile view of the crash sequence, especially if the initial impact occurs on a tall tree or power line where a large vertical axis is needed.
- (f) For midair collisions, construct a composite diagram (wreckage distribution of both aircraft superimposed on the same plot).
- (g) For a widely scattered wreckage distribution, use a larger grid sheet if needed, and attach it to this form.
- (h) If the aircraft rolls over or noses over one or more times along the crash path, so indicate by use of curved arrows.
- (i) Identify initial, major, and secondary impact points, as applicable.
- (j) Show location of key witnesses.
- (k) Show location of personnel thrown or ejected from the aircraft.

**TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT**  
PART IV - WRECKAGE DISTRIBUTION

For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA

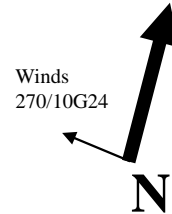
REQUIREMENTS CONTROL  
SYMBOL  
CSOCS-309

**1. GRID: SHOW MAJOR GOUGE MARKS, DISTRIBUTION OF WRECKAGE, OBSTACLES, DIRECTION OF NORTH, WIND DIRECTION, WIND VELOCITY, POSITION OF WITNESS, ETC.**

Suggested Scale: 1" Equals 50'

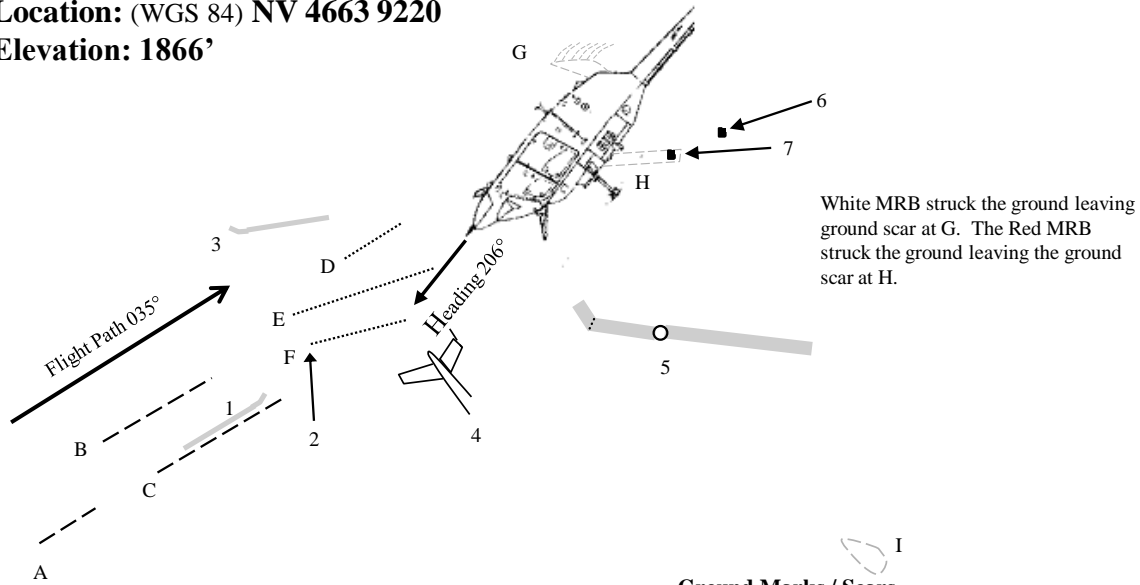
Actual Scale: 1" Equals Not to scale

Component	Dir	Dist
1. Right Skid Tube (10' 4" segment oriented 221°)	221°	28.5'
2. Lower Blade of Lower WSPS buried at beginning of ground scar	229°	24'
3. Left Skid Tube (Intact)	260°	14'
4. Last 4 feet 9 inches of tail boom and tail rotor	177°	15'
5. Main Rotor System (8.5' WMRB and 16.5' RMRB)	115°	19'
6. 4" Section of MRB tip cap	055°	27'
7. 1" Section of MRB tip cap (exact fit with #6 above)		
8. Off Chart: 10" Section of MRB	099°	75'
9. Off Chart: 1' Section of Tail Rotor Drive shaft	065°	87'
10. Off Chart: Aft 4 inches of left hand skid tube	234°	88'
11. Off Chart: Outer 16 inches of White MRB less the tip cap	352°	95'
12. Off Chart: 9' Section of MRB honeycomb	135°	99'
13. Off Chart: MRB tip cap section	026°	203'
14. Off Chart: 6" section of tail rotor drive shaft	072°	300+'



**Components**  
Direction & distance  
measured from  
Aircraft nose.

**Location: (WGS 84) NV 4663 9220**  
**Elevation: 1866'**



**Ground Marks / Scars**

Direction & distance measured from nose of aircraft to nearest point of mark/scar.

Ground Marks/Scars	Measurements	Dir	Dist
A. Right skid tube (initial)	6' L < 1" D Oriented 221°	221°	60'
B. Left skid tube	11' 4" L, < 1" D Oriented 221°	220°	32'
C. Right skid tube (second)	15' L, < 1" D Oriented 221°	221°	28'
D. Crosstube	6' 11" L < 1" D Oriented 221°	264°	6'
E. Fuselage	15' 3" L x 1" W < 1" D Oriented 237°	210°	5'
F. WSPS/Fuselage	10' 8" L x 1" W < 1" D Oriented 241°	208°	12'
G. Red MRB impact	5' L x 2' W x 6" D Oriented 286°	024°	11'
H. White MRB impact	5' L x 1' W x 6" D Oriented	076°	11'
I. MRB impact	40" L x 18" W x 6" D Oriented 120°	123°	56'

Skid impressions at B and C are 86" apart the length of the ground scars.

<b>2. CASE NO.</b>	a. DATE (YYMMDD) 010509	b. Time 2125	c. Acft Serial No. 7120576	d. OTHER AIRCRAFT SERIAL NO.
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(3) A polar diagram is another acceptable method of diagramming rotary-wing or fixed-wing accident sites. A suggested format for polar diagrams is:

- (a) The top of the diagram can represent north.
- (b) A readily identifiable portion of the wreckage, for example, fuselage, nose, wing, can serve as a point of origin or pole for the diagram.
- (c) Choose a scale that will allow plotting of the whole accident scene.
- (d) Determine the compass heading of the aircraft at its final resting place and position a semblance of the aircraft on the diagram so debris can be plotted from that point.
- (e) Determine the compass heading and distance of pieces of wreckage from the main body of the wreckage.
- (f) Number the location of each piece of wreckage at the position it was found relative to the main wreckage.
- (g) Define the numbers with a legend that identifies each piece of wreckage and shows its direction and distance from the main wreckage.

## 2. Ground Accidents:

a. Ground accident reports, the DA Forms 285 series do not include a dedicated form similar to the aviation DA Form 2397-5. Diagrams prepared for the report are placed under tab 4 of the DA Form 285-A along with accident photographs. Diagrams are not required for the report but are used, when needed to clarify the circumstances of the accident.

b. The intent of the diagram is to clarify the accident and as such those items required to meet those ends are included. Each accident is unique and will required different elements be included in the diagram. The checklist included in paragraph three is aviation accident oriented, but can be used for both aviation and ground accident sites.

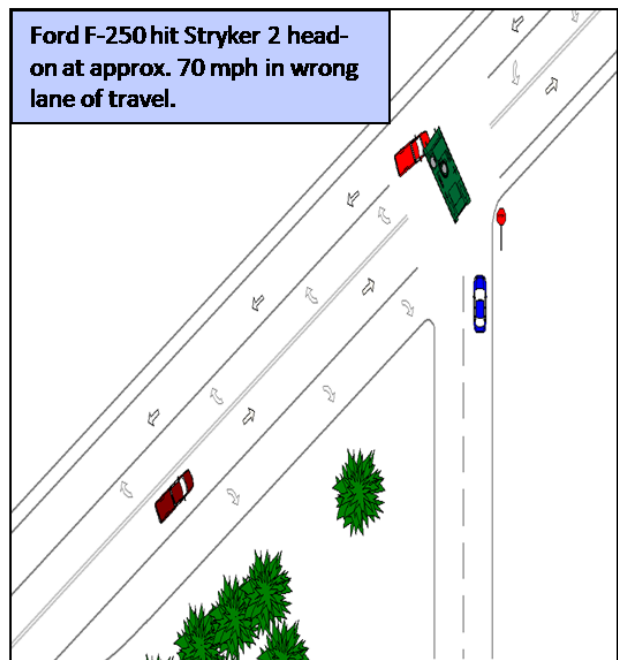
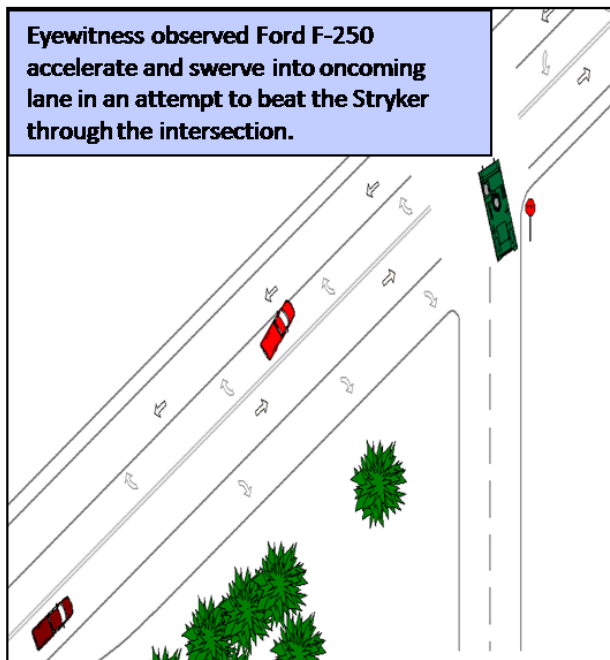
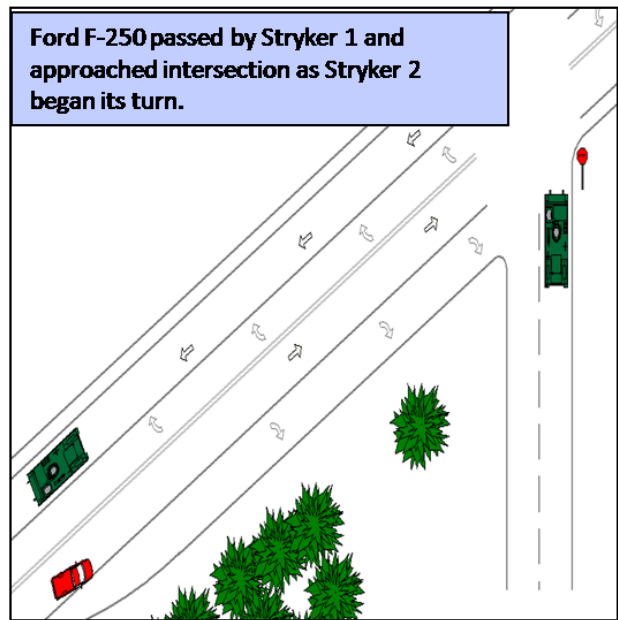
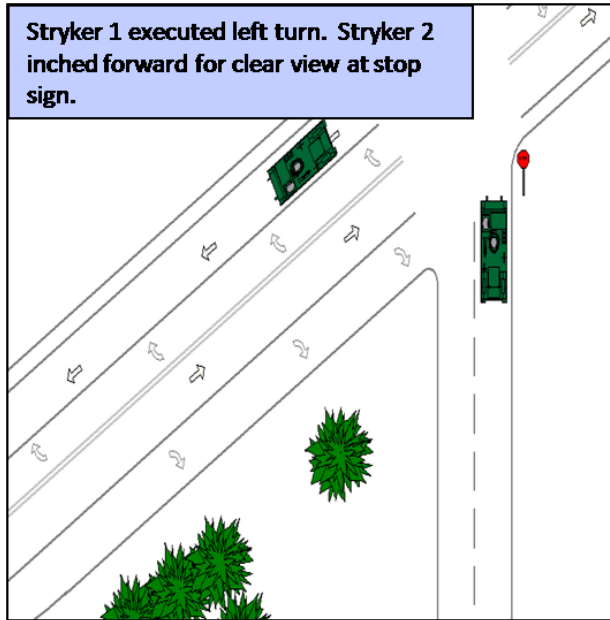
### (1) General information:

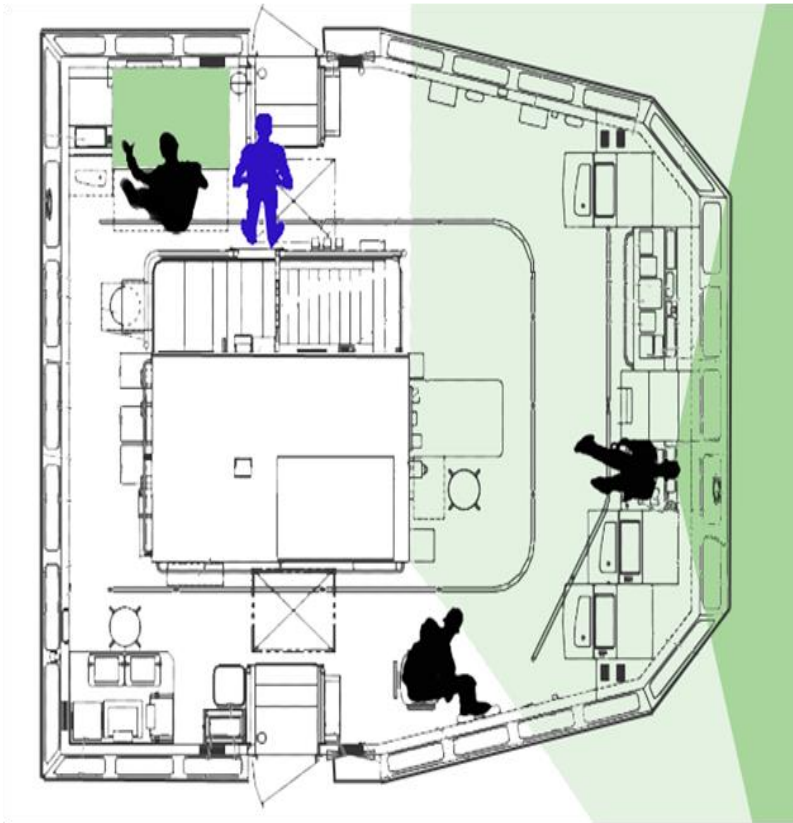
- (a) Orient the direction of travel (at the instant of initial impact) along the horizontal or vertical axis of the page.
- (b) Show the direction of true north near the top of the page.
- (c) Co-located with the north arrow, show wind speed and direction with an arrow pointed in the direction of the wind flow. Annotate the wind velocity in knots and direction in degrees.
- (d) Indicate the scale used for the drawing, if not to scale, annotate "Not to Scale" prominently on the diagram.

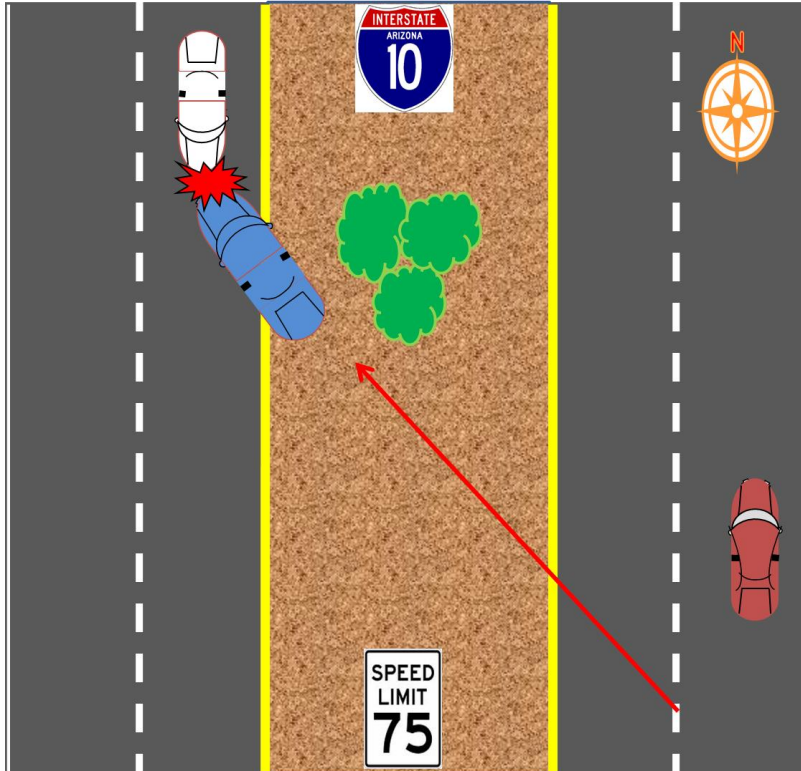
### (2) Use the grid to show:

- (a) Location of all equipment major and significant components.
- (b) Obstacles struck during the accident sequence. For example, structure, trees, power lines.
- (c) Terrain marks made by the equipment/personnel in the crash sequence.

- (d) A profile view of the wreckage distribution, especially if the impact occurs on sloped terrain or on obstacles in the direction of travel.
- (e) If necessary, use more than one diagram to show the profile view of the crash sequence, especially if the initial impact occurs where a large vertical axis is needed.
- (f) If the vehicle rolls over or noses over one or more times along the crash path, so indicate by use of curved arrows.
- (g) Identify initial, major, and secondary impact points, as applicable.
- (h) Show location of key witnesses.
- (i) Show location of personnel thrown or ejected from the equipment.







3. The following is a sample checklist to follow for the Wreckage Distribution Diagram.

- a. Has arrangement been made for facility engineers to plot wreckage?
- b. Has the wreckage distribution plot been initiated?
- c. Does the wreckage distribution plot show location of all aircraft/vehicle components in their post-crash/accident position relative to the flight path of aircraft just prior to impact?
- d. Does the wreckage distribution plot show a plane and profile view?
- e. Does the wreckage distribution plot show all terrain marks made by aircraft/vehicle/equipment in the crash sequence (earth gouge depth, length and width, snow or earth pushed in front of the aircraft/vehicle, etc.)?
- f. Have all components, terrain marks, obstacles, witnesses, terrain features been surveyed to give distance and azimuth from the main wreckage?
- g. Does the wreckage distribution plot show the major impact of the aircraft/vehicle or equipment?
- h. Does the wreckage distribution plot show the secondary impact(s) of the aircraft/vehicle?
- i. Does the wreckage distribution plot show the location of eyewitnesses?
- j. Is the wreckage distribution plot complete and accurate?
- k. Have the locations of all occupants been determined?
- l. Has flight controls and settings been determined and noted (controls, radios, autopilot, flaps, etc)?
- m. Has the flight path or direction of travel been determined?
- n. Has flight altitude prior to accident descent been determined?

- o. Has flight attitude prior to accident descent been determined?
- p. Have the lateral and longitudinal attitudes at ground impact been determined?
- q. Has the speed at impact been determined? G-forces?
- r. Has the angle of impact been determined?
- s. Has the angle from obstacle to initial ground impact been determined?
- t. Has the distance of travel and of structural displacement from initial impact been accurately measured?
- u. Has the manner of flight (straight, cart-wheeling, etc.) after impact been determined?
- v. Have the personal effects been plotted/accounted for?