

Fracture and Tear Matches

If the irregularly shaped fractured or torn edges of two or more pieces of any material can be joined together to form a continuous section, then it can be concluded that the pieces at one time shared a common origin. This comparison is the most positive conclusion that can be drawn in the area of trace evidence. The Forensic Scientist has eliminated all other similar materials as the source of the pieces.

Investigators often carefully check a scene for fingerprints or DNA, knowing their value to conclusively link a person to the scene – while overlooking a torn piece of paper, a broken piece of metal or glass, or other broken item. Any of those items can, if another piece is found in the possession of a suspect, form just as conclusive a link with the scene.

A fracture match results when two pieces of rigid material (plastic, wood, glass, metal, etc.) from separate locations are reconstructed to form a continuous section of that material (see Table 25-1). A cut or tear match results when two pieces of pliable material (such as, plastic bags, paper, foil, fabric, etc.) from separate locations are reconstructed to form a continuous section of that material. Perforated paper products (checks, notebook paper, LSD blotter paper, etc.) can often be linked back to their source via tear matches (see Table 25-2).

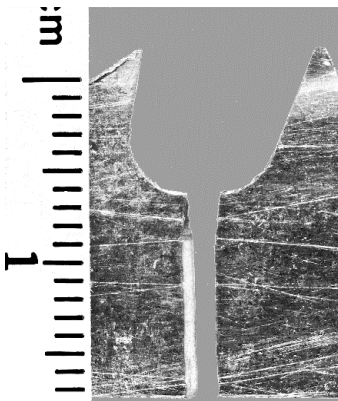


Fig. 25-1 Fracture match of a broken saw blade.

Table 25-1
Examples of Potential Sources for Fracture Matches

Motor Vehicles	Bicycles	Burglary	Miscellaneous
Paint chips	Tubular metal	Paint*	Knives
Headlights	Reflectors	Wood*	Feathers
Grill	Lights	Tool parts	Stone
Exterior mirrors	Tires	Glass	Bones:
Antenna	Inner tubes	Safe wall	Animal
Windshields	Spokes	Metal:	Human
Wipers	Fenders	Doors	Fingernails
Parking lights	Baskets	Trim	
Tail lights		Machinery	
Trim pieces			

* fractured material may be found adhering to a tool

Table 25-2
Examples of Potential Sources for Tear/Perforation Matches

Matches	Cardboard
Documents	Money
Paper bags	LSD blotter paper
Checks	Drug folds
Stamps	Cloth/fabric
Sheet plastic	Plastic bags
Duct tape	Other Tape

Importance of Thorough Collection and Proper Preservation

It is of the utmost importance that **all** pieces of the broken item(s) at the scene be collected and preserved for later comparison with similar evidence collected from the suspect, victim, vehicle, home or other scenes; it is impossible to know in advance which pieces will be matched to each other. This requires a careful and thorough search of the scene.

Package items from each location **separately**. In order to confidently establish a link between an item left at the scene and another item recovered elsewhere, each item's origin must be documented. If items are, or could be co-mingled during collection, storage or transport, their evidentiary value is lost. See [Chapter 1 - Evidence Integrity](#) for further information on packaging and sealing.

For information on specific types of fracture matches and procedures associated with their collection, see the following chapters: [Chapter 16 - Burglary](#), [Chapter 17 - Building Materials](#), [Chapter 18 - Glass](#), [Chapter 19 - Tool Marks](#), [Chapter 20 - Paints](#), [Chapter 21 - Metals](#), [Chapter 24 - Woods and Sawdust](#), [Chapter 26 - Vehicles](#) and [Chapter 35 - Questioned Documents](#).

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