

## Memorandum

**To:** Mr. Harold Barrett, Manager, Relizon Houston Distribution Center  
Mr. Sydney Rose, Manager, Relizon Houston Business Service Center

**From:** Eric Olson

**Date:** March 20, 2006

**Subject:** Recommendation of a digital camera for Receiving

This memo presents my recommendation for a digital camera to buy for use in the Receiving Department; it is a response to a request by Mr. Barrett and Mr. Rose that I research the issue. This memo describes the cameras I chose for comparison, the features I compared from camera to camera, the results of my comparisons, and my overall recommendation of which camera to buy.

### Background

This digital camera will replace the old Polaroid Instant camera used by Receiving to document damage found to incoming freight. It should be capable of photographing freight in the warehouse as well as in the dimly lit interiors of trailers. It should be compatible with the personal computer and inkjet printer currently used in Receiving, produce prints of good quality up to 8 x 10 in (15 x 20 cm) in size, and be easy for personnel in Receiving to use. Mr. Rose has suggested the camera should cost no more than \$350.

### Definitions

At this point, I should define a few commonly used terms that describe digital camera features.

**ISO setting**     The ISO (International Standards Organization) setting on a digital camera is a sensitivity setting. The ISO setting determines the sensitivity to light of the image sensors (individual photodiodes) in the camera. A high ISO setting, e.g., 1600, causes the image sensors to be very sensitive and enables the camera to take pictures in dim light. A low ISO setting, e.g., 100, causes the image sensors to be less sensitive and requires a more brightly lit scene for a properly exposed picture. As a camera's ISO setting increases, picture quality suffers: at high ISO settings, a grainy texture appears in what should be uniform areas of color [1].

**macrophotography**     Macrophotography is a kind of "close-up" photography using a special macro lens or special macro adjustment to a camera's lens that allows the camera to focus on very close subjects (within a few inches [2.5 cm] to 1 or 2 feet [61 cm]) [2]. Strictly speaking, macrophotography permits a camera's lens to project an image onto the image sensor that is the same size or larger than the actual object being photographed [3].

- megapixel Megapixel (derived from *million picture elements*) is a measure of the resolution of a digital camera. The higher the megapixel rating of a camera, the greater the number of individual light sensors (photodiodes) in the camera's image sensor and the greater the amount of detail a camera can capture. Also, the higher the megapixel rating of a camera, the larger the prints from the camera can be enlarged without suffering obvious loss of detail [4]. But prints must be quite large before this effect is noticeable: according to *Consumer Reports*, a camera with a 3- or 4-megapixel resolution can make an 8 x 10 in (15 x 20 cm) print of an entire, uncropped image that looks as sharp as one from a 6- to 8-megapixel camera [5].
- USB cable A USB (Universal Serial Bus) cable is a cable that transfers images stored in a camera to a computer at a relatively high speed. A USB 1.1 cable is the type of cable used with most digital cameras. Typically, modern personal computers come with USB ports that accept USB cables [6].

### Camera Options

I selected four digital cameras to consider for purchase. These cameras cost \$350 or less and can photograph with built-in flash at distances of at least 16 feet (4.9 m), a feature necessary for taking pictures of trailer interiors. These four cameras were the only cameras meeting both of these criteria in a recent review of 58 cameras published by *Consumer Reports* [7]. The cameras weigh between 7 and 9 oz (including battery and memory card) and are known as "basic" or "compact" cameras in comparison to "subcompact" cameras that weigh as little as 4 oz. All four cameras can be operated in a simple, point-and-shoot mode [8, 9, 10, 11]. Camera prices shown are the lowest retail prices listed in price surveys performed by BizRate Shopping Search on March 1, 2006 [12]. The cameras are the:

- Fujifilm FinePix F10, a 7-oz, 6.3-megapixel camera for \$295
- Hewlett-Packard Photosmart R717, a 7-oz, 6.2-megapixel camera for \$245
- Olympus Stylus 800, a 7-oz, 8-megapixel camera for \$330
- Pentax Optio 750Z, a 9-oz, 7-megapixel camera for \$350

These cameras are compared by *Consumer Reports* ([www.consumerreports.org/cro/home.htm](http://www.consumerreports.org/cro/home.htm)), and they receive systematic, detailed professional reviews by *Digital Photography Review* ([www.dpreview.com](http://www.dpreview.com)), the main source of the evaluative information I use.

### Features Used for Comparing the Cameras

The camera in Receiving is used about once a month to take pictures to submit with claims against carriers for damage done to freight consigned to the Relizon Company. Given this context, I chose to compare the cameras by judging the extent to which they meet each of these six requirements:

- *Print quality.* The cameras should be able to produce 8 x 10 in (15 x 20 cm) prints of suitable quality to submit with damage claims.
- *Flash range.* The cameras should be able to take flash photographs at a distance of at least 16 ft (4.9 m), a minimum distance and an essential requirement.
- *Macrophotography.* The cameras should be able to take close-up photographs at a distance of 1 ft (30.5 cm) or less.
- *Durability.* The cameras should be rugged enough to be stored for long periods and then used in a warehouse environment.
- *Ease of use.* The cameras should be as easy as possible to use, preferably without consulting instructions.
- *System compatibility.* The cameras should be compatible with the Windows 2000 Professional operating system and connect to a computer with a USB cable.

## Comparisons

I compared the four cameras to each other, feature by feature.

**Print quality.** All four cameras produce prints of acceptable quality, including level of detail and color reproduction. Because they range from 6.2-megapixel (Hewlett-Packard Photosmart R717) [9] to 8.0-megapixel (Olympus Stylus 800) [10], they all produce quality prints up to 8 x 10 in (15 x 20 cm). According to *Digital Photography Review*, however, one of the cameras, the Olympus Stylus 800, has slight defects in print quality: images that are “over-sharpened and contrasty,” a “smearing of low contrast detail (such as foliage or hair),” and a tendency to “mis-expose bright, high contrast scenes” [13]. The same publication found only very minor image quality problems with the Hewlett-Packard Photosmart R717 [14] and the Pentax Optio 750Z [15] and described the Fujifilm FinePix F10 as “capable of superbly detailed results with no serious image quality issues” [16]. Based on the evaluations made by *Digital Photography Review*, I believe the print quality of the Fujifilm FinePix F10 is likely to be marginally better than that of the other three cameras.

**Flash range.** Both the Fujifilm FinePix F10 [8] and the Olympus Stylus 800 [10] have flash ranges of 21 ft (6.4 m), while the Hewlett-Packard Photosmart R717 [9] and Pentax Optio 750Z [11] have ranges of 16 ft (4.9 m) and 17 ft (5.2 m), respectively. (Flash ranges were measured with maximum wide angle settings and automatic ISO settings for each camera.) The Fujifilm FinePix F10 and Olympus Stylus 800 have clearly superior flash ranges.

**Macro photography.** The Fujifilm FinePix F10 can focus to 3.0 in (7.5 cm) [8]; the Hewlett-Packard Photosmart R717 to 5.5 in (14 cm) [9]; the Olympus Stylus 800 to 1.3 in (3.3 cm) [10]; and the Pentax Optio 750Z to 0.8 in (2.0 cm) [11]. (These distances were measured at each camera’s highest macro and wide angle settings.) *Digital Photography Review* reports, however, that the flash on the Hewlett-Packard Photosmart R717 “burns out highlights if the subject is closer

than about 0.6 m [2.0 ft]" [14]. Any of the other three cameras appears capable of taking excellent close-up pictures.

**Durability.** *Digital Photography Review* gives high ratings for build quality for the Fujifilm FinePix F10 (which has an "all metal exterior," meets a "very high standard of construction" [17], and has "superb build and handling" [16] qualities), the Hewlett-Packard Photosmart R717 (which is "incredibly well built" with a stainless steel front and "high-impact" plastic back [18]), and the Olympus Stylus 800 (which is of "excellent build quality" and described by its manufacturer as "weatherproof" [13]). *Digital Photography Review* reports, however, that the Pentax Optio 750Z's "metal body isn't as thick and the fit wasn't quite as good" as its competitors', and it described a "cheap plastic feel to the LCD [monitor] hinge" [15]. Overall, the Fujifilm FinePix F10, the Hewlett-Packard Photosmart R717, and the Olympus Stylus 800 appear to be of superior quality construction while the Pentax Optio 750Z may be of comparatively poorer quality.

**Ease of use.** Of the four cameras, the Fujifilm FinePix F10 [8] and the Olympus Stylus 800 [10] have large, 2.5 in (6.4 cm) (diagonal) LCD monitors. The Hewlett-Packard Photosmart R717 has a 1.5 in (3.8 cm) monitor [9], and the Pentax Optio 750Z has a 1.8 in (4.6 cm) swivel monitor [11]. The Fujifilm FinePix F10 [16], Hewlett-Packard Photosmart R717 [14], and Olympus Stylus 800 [13] monitors are noted for their brightness, and the Olympus Stylus 800 monitor is noted for remaining "usable in very, very low light" [13]. *Digital Photography Review* finds some commonly used functions "too deep in the menus" in both the Fujifilm FinePix F10 [16] and the Olympus Stylus 800 [13], but describes the Hewlett-Packard Photosmart R717 as having a "superb user interface that guides the novice photographer by the hand" [14]. On the other hand, the Pentax Optio 750Z is described as having complex, "perhaps confusing/overwhelming controls" [15]. *Digital Photography Review* describes the Fujifilm FinePix F10 as a "straightforward point-and-shoot camera with little in the way of manual control" [19] that has "fast, reliable focus" [16], while the Olympus Stylus 800 is noted for its "excellent low light focus" [13]. Although it has the smallest (1.5 in [3.8 cm]) monitor, the Hewlett-Packard Photosmart R717 seems to be the easiest camera for the novice to master, while the Pentax Optio 750Z seems to be the most difficult. The Fujifilm FinePix F10 and the Olympus Stylus 800 do not stand out as particularly easy or difficult to use.

**System compatibility.** Each of these cameras is compatible with the Windows 2000 Professional operating system, and each connects to a computer through a USB cable [8, 9, 10, 11].

### Summary of Comparisons

These four cameras all cost \$350 or less and have flash ranges of 16 ft (4.9 m) or greater. Comparing the cameras feature by feature, I reached these conclusions:

1. *Print quality.* While all four cameras would produce acceptable 8 x 10 in (15 x 20 cm) prints, the Fujifilm FinePix F10 would likely produce slightly superior prints.
2. *Flash range.* The Fujifilm FinePix F10 and Olympus Stylus 800 have superior flash ranges, at 21 ft (6.4 m), and this is an important feature.

3. *Macrophotography*. The built-in flash of the Hewlett-Packard Photosmart R717 overexposes close-ups. The other three cameras would all make acceptable close-ups.
4. *Durability*. With the possible exception of the Pentax Optio 750Z, all the cameras are well built.
5. *Ease of use*. The Hewlett-Packard Photosmart R717 is likely the easiest camera to master while the Pentax Optio 750Z appears relatively difficult to learn.
6. *System compatibility*. All four cameras are compatible with the operating system and hardware used in Receiving.

These conclusions, along with a price comparison, are presented in the table below. For each feature, I rated each camera as poor, below average, average, above average, or superior *relative to these four cameras*. I then assigned the ratings numerical values: poor = 1, below average = 2, average = 3, above average = 4, superior = 5.

	Fujifilm Fine-Pix F10	Hewlett-Packard Photosmart R717	Olympus Stylus 800	Pentax Optio 750Z
Print Quality	4	3	2	3
Flash Range	5	3	5	3
Macrophotography	3	1	3	3
Durability	3	3	3	2
Ease of Use	3	5	3	2
System Compatibility	3	3	3	3
Price	4	4	2	2
Average Rating	3.6	3.1	3.1	2.6

Because any of these cameras would be satisfactory for use in Receiving, I made three additional decisions to help narrow the field:

1. Because it performs poorly taking macrophotographs, I eliminated the Hewlett-Packard Photosmart R717 from consideration.
2. Because it is difficult to learn (and has a low average rating), I eliminated the Pentax Optio 750Z from consideration.

3. Of the remaining two cameras, the Fujifilm FinePix F10 appears to be a somewhat better camera than the Olympus Stylus 800, particularly with regard to print quality and price, and is, therefore, the camera I recommend purchasing.

## Recommendation

I recommend purchasing the Fujifilm FinePix F10 digital camera. It is the only camera in this selection with features that all rank average or above, and it is reasonably priced. *Digital Photography Review* describes the Fujifilm FinePix F10 as a “fast, reliable, well-built, and easy-to-use ‘point-and-shoot’ camera that is both undemanding and rewarding in use and is capable of superbly detailed results with no serious image quality issues” [16].

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