The current AMC accounting rule for meeting aging and proficiency requirements is that each working CP aboard a flight receives credit for all the flying hours in that flight regardless of the number of pilots in the aircrew. The implication is that one hour spent piloting an aircraft and one hour spent observing another individual piloting that aircraft are equivalent for the purposes of meeting the flying-hour requirement. In reality, however, piloting provides better training than does observing. This chapter assesses the trend in time pilots spend piloting as opposed to observing.

Craig Vara at AMC/DOT provided us with the numbers of full-time CPs and ACs for a given type of airlifter or tanker. He also provided average monthly flying hours per CP and per AC. On the basis of his data, we calculated the total annual pilot flying hours flown by full-time CPs and ACs for each aircraft type. Separately, we obtained the corresponding total annual aircraft flying hours by subtracting those aircraft flying hours flown by associate reservists from AMC aircraft flying hours. We then divided the total annual pilot flying hours by the total annual aircraft flying hours to determine the average number of pilots (CPs plus ACs) per flight. We similarly calculated the average number of CPs per flight and the average number of ACs per flight. The sum of these two numbers equals the average number of pilots per flight.

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1. AMC already keeps a separate record of in-seat and other flying hours. “In-seat flying hours” are those that accrue when the pilot is in a pilot seat. “Other flying hours” are those that are accumulated when the pilot is not in a pilot seat. When a pilot is in a pilot seat, we define his activities as piloting. Even when the aircraft is flying on autopilot, the two pilots in pilot seats will still have much to do—e.g., monitoring the flight management system and maintaining communications, including sending and receiving messages.

2. Note the difference between pilot flying hours and aircraft flying hours. If a flight crew consists of three pilots, each aircraft flying hour would generate three pilot flying hours.

3. Recall that associate reserve units do not have their own aircraft, and their associate reservists fly organic assets.
Figure 4.1 shows all three measures for the C-5. The number of ACs per flight approximated 1.5 over the past two decades. Because every flight must be commanded by an AC, unity is the minimum number for this measure. Unity also provides the most flying opportunity for CPs to satisfy their aging requirement according to the current AMC counting rule. Thus, reducing the number from 1.5 to 1.0 will provide more flying hours to CPs, thereby helping reduce CPs’ flying-hour shortage. Figure 4.1 also shows that during the last two decades, the number of CPs per flight increased from around 1.0 to roughly 1.5.

The minimum number of pilots (CPs and ACs) for a regular C-5 flight is 2.0, but 3.0 for extended and special operations flights. Thus, averaging over all C-5 flights, the minimum number of pilots is somewhere between 2.0 and 3.0. The actual number of pilots per flight increased from 2.5 in the early 1980s to as high as 3.5 or 4.0 during 1995–1997 and declined to slightly below 3.0 by 1999. The high number during 1995–1997 resulted from the previously discussed surge in the number of CPs—which stemmed in turn from a surplus of UPT graduates and from the need to provide such graduates with aging flying hours. Assigning more pilots to a flight than is strictly required could affect the quality of training. Fortunately, this problem has diminished as the average number has declined to below 3.0. Still, the general upward trend from 2.5 in the early 1980s to

![Figure 4.1—C-5 Average Number of Pilots per Flight](image_url)

NOTE: Data points for 1990 and 1994 were excluded from the determination of the trend lines.
3.0 by the late 1990s could be a warning sign pointing to a reduction in flexibility. When pilots need more flying hours to meet their requirements, one cannot simply place additional pilots on a flight without negatively affecting their training. It is, however, possible to replace an AC with a CP if the flight originally planned to have two ACs on board.

Figure 4.2 shows three average-pilots-per-flight measures for the C-141. The average number of ACs per flight increased from 1.0 in the 1980s and early 1990s to close to 2.0 in the late 1990s. This reflects the excess of ACs over CPs in the C-141 force as the fleet is retired. The overall average number of pilots per flight increased from 2.0 in the 1980s to 3.0 in the latter half of the 1990s. Although C-141s will soon be completely retired, the increasing numbers of pilots per C-141 flight may still be a concern because many of these pilots will be transferred to fly other AMC aircraft types. If such pilots do not soon receive adequate training, flying safety could be compromised both now and in the future. The average-pilots-per-flight figures for the C-17 are shown in Figure 4.3. The few data points for this newly introduced aircraft indicate 1.5 CPs and

![Figure 4.2—C-141 Average Number of Pilots per Flight](image_url)

NOTE: Data points for 1990 and 1994 were excluded from the determination of the trend lines.
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1.7 ACs per flight by 1999. An average number above 3.0 signifies that more pilots are placed on these flights than are technically needed.\(^4\)

The average-pilots-per-flight figures for the C-130 are shown in Figure 4.4. The average number of pilots per flight trended slightly upward toward 2.0 by the late 1990s. Unlike the strategic airlifters (the C-5, C-141, and C-17), the C-130 is a tactical airlifter. Its flight times are short enough that it does not require a third pilot as an augmented crew member. That the average number is close to the minimum number of 2.0 implies that the practice is to place two but not three pilots on a C-130 flight.\(^5\) Thus, C-130 pilots are trained and aged in 100 percent piloting and 0 percent observing, unlike the case for strategic airlifter pilots, who are trained on a mix of the two. We do not have data for the two tankers, the KC-135 and KC-10.

In sum, the average numbers of pilots per flight for the strategic airlifters (the C-5, C-141, and C-17) trended upward toward a figure of 3.0 or above. Such a

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\(^4\)The C-17 requires two pilots to man a normal-length flight and three pilots to man an extended or special operations flight.

\(^5\)Because a C-130 flight requires at least two pilots, it comes as a surprise that the average number, especially during the 1980s, dropped below two. We have not included those few occasions when staff pilots (not full-time pilots) have joined the flight crew. The focus here is on the flying hours of full-time CPs and ACs. We do not count the flying hours of staff pilots.
Do Pilots Spend Less Time in Piloting? 41

Figure 4.4—C-130 Average Number of Pilots per Flight

A high number means that if pilots need more flying hours in the future, providing those flying hours by placing extra pilots on each flight will increase the ratio of observing-pilot time, with potentially negative consequences for the quality of training. On the other hand, the average number of ACs per flight for these strategic airlifters has remained at 1.5 or more in recent years. Therefore, when CPs need more flying hours, an option exists to replace the extra (second) AC with a CP on a flight. As for the C-130 tactical airlifter, the practice of placing no more than two pilots on a flight implies that such pilots are spending all their time piloting as opposed to observing during the flight. This arrangement yields the best training quality.