F-4 Phantom Tailhook

F-4D from Udorn AB in Viet Nam with it's tail-hook down in preparation to engage the arresting cable.

A common misconception is that only Navy planes have tail-hooks. In fact, essentially all military fighter planes and even some non-fighter planes have tail-hooks. In addition, essentially all military runways and some commercial runways such as Tulsa International Airport, have arresting cables for use by military fighters if needed. There are several aircraft emergencies that make it difficult to maintain directional control after landing or make it difficult to stop before running off the runway. These emergencies include loss of utility hydraulics, brake failure, blown tire, landing gear malfunctions, and other problems that could make it difficult assure a safe and controlled roll-out after landing.

There are several types and sizes of arresting gear and each has different limits on the combination of weight and speed of the aircraft engaging the barrier. Typically the part of the cable that stretches across the runway is 1¼ inch stranded steel cable with rubber spacers called "donuts" or other devices spread out along the cable to hold it a couple of inches above the runway. This gives the hook a better chance of engaging the cable. The ends of the cable are attached to steel bands rapped around a breaking assembly to rapidly decelerate and stop the aircraft.

The figure to the right is a scanned copy of the maximum cable engagement speeds for various weights and cable types. The data is out of the 1970 Flight Manual for the F-4C, F-4D, and F-4E aircraft models.

FIELD ARRESTMENT GEAR DATA

AIRCRAFT WEIGHT–POUNDS	BAK–6	BAK–9	BAK–12 1'' PENDANT	BAK–12 1 1/4'' PENDANT	BAK–13	M–21
	MAXIMUM ENGAGEMENT SPEED – KNOTS					
30,000	160	188	190	190	160	
32,000	160	186	190	190	160	
34,000	160	184	190	190	160	
36,000	158	182	190	190	160	150
38,000	156	180	190	190	160	145
40,000	154	177	190	190	160	
42,000	153	173	190	190	160	
44,000	152	169	189	190	160	
46,000	150	165	187	190	160	
48,000	148	161	183	190	160	
50,000	146	158	177	189	160	
52,000	145	155	172	185	160	
54,000		151	169	181	160	135
56,000		147	165	177	160	
58,000		143	162	173	160	
60,000		139	159	170	160	