

Historical Sketch: XS-1 and Breaking the Sound Barrier

One of the most storied accomplishments in aviation history took place in secrecy on October 14, 1947, when U. S. Air Force Captain Chuck Yeager in the Bell Aircraft Corporation's Experimental Sonic-1 (XS-1) rocket plane dropped from the belly of its B-29 mothership and exceeded the speed of sound (Mach 1). Fighters operating in the transonic flight regime in wartime had already experienced instability, increased drag, and other negative effects as the efficacy of their flight controls degraded in high-speed dives.

The project to break the so-called sound barrier reached the Mojave Desert as the Air Force's XS-1 arrived along with personnel from Wright Field in Dayton, Ohio at Muroc Army Air Field on July 27, 1947. The Air Force's test team consisted of B-29 flight engineer Lt. Edward L. Swindell; XS-1 backup and chase pilot 1st Lt. Bob Hoover; officer-in-charge and B-29 launch pilot Maj. Robert L. "Bob" Cardenas; XS-1 pilot Captain Yeager; and XS-1 project engineer Capt. Jackie Ridley.

The XS-1 experimental airborne research verified the safety and controllability of flight in the transonic and supersonic flight regimes, the feasibility of air-launch operations, and helped establish what would become a recurring partnership, between the Air Force Test Center and NASA at Edwards AFB. Warfighters since the 1950s have reaped the benefits of the supersonic capabilities the XS-1 helped enable, as do Air Force pilots operating the F-16, F-22, and F-35.

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 01-07-2019		2. REPORT TYPE Historical Sketch		3. DATES COVERED (From - To) N/A	
4. TITLE AND SUBTITLE Historical Sketch: XS-1 and Breaking the Sound Barrier				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Stephanie M. Smith				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) AND ADDRESS(ES) Air Force Test Center History Office 305 East Popson Avenue Edwards AFB, CA 93524				8. PERFORMING ORGANIZATION REPORT NUMBER 412TW-PA-19326	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Air Force Test Center History Office 305 East Popson Avenue Edwards AFB, CA 93524				10. SPONSOR/MONITOR'S ACRONYM(S) N/A	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release A: distribution is unlimited.					
13. SUPPLEMENTARY NOTES N/A					
14. ABSTRACT Historical sketch of the flight test and evaluation of the Bell Corporation's XS-1 by U.S. Army Air Corps/U.S. Air Force at Muroc Army Air Field/Edwards Air Force Base, California in 1947					
15. SUBJECT TERMS X-1;XS-1; Bell Corporation; Muroc Army Air Field; Edwards Air Force Base; California; flight test and evaluation; U.S. Army Air Corps; U.S. Air Force; Mojave Desert; Wright Field; Dayton, Ohio; Lt. Edward L. Swindell; 1st Lt. Bob Hoover; Maj. Robert L. "Bob" Cardenas; Captain Yeager; Capt. Jackie Ridley; transonic; supersonic					
16. SECURITY CLASSIFICATION OF: Unclassified			17. LIMITATION OF ABSTRACT None	18. NUMBER OF PAGES 2	19a. NAME OF RESPONSIBLE PERSON 412 TENG/EN (Tech Pubs)
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code) 661-277-8615