412TW-PA-182000

412TH RANGE SQUADRON TRIFOLD

BRIANNA VAN NORDEN

BRITTANY LAFFOOON

AIR FORCE TEST CENTER
EDWARDS AFB, CA

APRIL 2018

4 1 2 T W

412TH TEST WING
EDWARDS AIR FORCE BASE, CALIFORNIA
AIR FORCE MATERIEL COMMAND
UNITED STATES AIR FORCE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
04-16-2018	Trifold	

4. TITLE AND SUBTITLE

Trifold Range Pamphlet

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Brianna Van Norden
Brittany Laffoon

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) AND ADDRESS(ES)
412TH Range Squadron
106 E Popson Ave
Edwards AFB CA 93524

8. PERFORMING ORGANIZATION REPORT NUMBER
412TW-PA-18200

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
412th Test Wing
195 E Popson Ave
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
412 RANS tours and lobby information

14. ABSTRACT
Introduction of the 412th Range Squadron capabilities and team.

15. SUBJECT TERMS
412th Range Squadron

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
					412 TENG/EN (Tech Pubs)
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**	None	4	**19b. TELEPHONE NUMBER** *(include area code)*
Unclassified	Unclassified	Unclassified			661-277-8615

EDWARDS AIR FORCE BASE

Time Space Position Information (TSPI)

The TSPI department is capable of providing end-to-end support for flight test needs. They utilize a multitude of sensors and software to create high accuracy trajectory data for test flight engineers. Achieving the high levels of accuracy necessary for flight test is more involved than immediately apparent. TSPI trajectory estimation and analysis is used on aircraft, ships, and ground vehicles. TSPI sections include real-time/post-flight, engineering, and development. The goal of TSPI is to reconstruct a vehicle's trajectory and attitude as accurate as possible, in order to provide a suitable "truth standard" that can be used as a reference for T & E purposes. Engineering and technical disciplines within TSPI include: physics, mathematics, engineering, computer science, geophysics, geodetics and aeronautics.

Range Operations

The Range Control Officer (RCO) is the operational range representative supporting the planning, provisioning, and execution of Developmental, Test and Evaluation (DT&E) flight and ground missions in a dynamic range environment. The RCO actively engages with test program managers in order to enable successful test execution. As a vital member of the range test support team, the RCO works with test directors, test conductors, and various disciplined test engineers to conduct mission control room activities, to acquire data during real-time flight tests, and process test data during post-flight operations. In this exciting range environment, the RCO is trained and experienced in radar, telemetry, communications, optics, airspace, and instrumentation systems to advance the 412th Test Wing's DT&E mission.

The Air Force Test Center - 412th Test Wing is the host wing for Edwards Air Force Base, CA. the 2nd largest base in the Air Force. The wing oversees base day-to-day operations and provides support for over 10,000 military, federal civilian and contract personnel assigned to a 481 square mile installation. The 412th Test Wing plans, conducts, analyzes, and reports on all flight and ground testing of aircraft, weapons systems, software and components as well as modeling and simulation for the U.S. Air Force. There are three core components for this mission: flying operations, maintenance and engineering.

412th Range Squadron Leadership team:

Tony Rubino
anthony.rubino@us.af.mil

Frank Dones
francisco.dones@us.af.mil

Randall Heiling
randall.heiling@us.af.mil

Max Lopez
max.lopez.2@us.af.mil

Mike Bonner
michael.bonner.1@us.af.mil

Kevin Montoya
kevin.montoya@us.af.mil

Jonathan Denning
jonathan.denning.2@us.af.mil

412th Range Squadron

412TH TEST WING

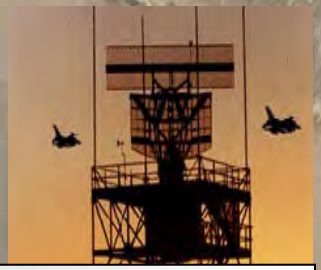
TEST RANGE CAPABILITIES

SUMMARY AND HIGHLIGHTS

FIDELIS MISSIONI

412TH RANGE SQUADRON

Engineering



Virtually every byte of telemetry, voice communication, trajectory and video data from cutting edge Air Force weapons systems under test and evaluation ride on high-tech networks. IT Specialists use networking and cyber security expertise, education and passion for technology. They build, maintain, configure and safeguard our most precious technical asset at Edwards…the flight test network back bone! To allow Electronic and Mechanical Engineers to test the world's most advanced weapons systems takes high-tech infrastructure! The engineers are responsible for designing, testing, documenting and executing complex projects daily in support of Flight Test Customers. Electronics Technicians are the fuel that runs the Range's high-performance motor! Using sharply-honed skills in troubleshooting, cable and fiber optic termination and testing, mechanical installation, test-equipment usage and quality control inspection, they make vision a reality!

Data Production

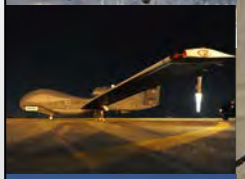
Data production is the team behind the Test Pilot. The flight control operations center is a facility that manages flight test of advanced aerospace vehicles, from the point of takeoff to landing. It is part of the ground segment of aerospace test operations. A staff of analysts, test directors, and other support personnel monitor all aspects of the mission using telemetry to monitor safety, performance, health, and status of the aerospace vehicle that is under test. Personnel supporting the mission can include representatives of the defensive avionics, power, propulsion, thermal, flight dynamics, sensor fusion and other subsystem disciplines.

Precision Impact Range Area (PIRA)

PIRA personnel perform organizational, intermediate, and depot level maintenance, as well as preventive maintenance inspections, of roads, targets, airdrop and jump zones, perimeter fences, and buildings. Range personnel also close roads, taxiways, and runways as required by Range Safety to protect both public and government assets. Expended munitions are removed from target areas and stored at the Munitions Residue Storage Area. PIRA personnel also work closely with project engineers and the range engineers to provide the customer with technical, operational, and logistical advice on the best use of targets and assets. Personnel also work closely with base environmental to minimize impact to natural and cultural resources.

Ridley Mission Control Center

- Mission Control Rooms
- Air-to-Ground Communications
- Telemetry Data Processing (PCM, FM, PAM)
- Video Control Center
- Test Evaluation Command and Control System (TECCS)
- Range Operations
- Special Projects Support



Edwards is in the center of a vast range comprised of government lands and airspace necessary for flight test and evaluation:

- Edwards AFB Flight Test Range
- Utah Test Training Range
- Tonopah/Nellis AFB Range
- Vandenberg AFB Range
- Naval Air Warfare Center
- Point Mugu
- China Lake
- White Sands Missile Range
- Fort Huachuca Aerial Vehicle Training Ground
- Yuma Proving Grounds
- Private Sector Research and Development

Today as one of the premier ranges in the country, the Range continues to improve and expand its extensive capabilities in all major areas, including:

- Mission Control
- TSPI (Time Space Position Information)
- Telemetry Data Acquisition
- Data Transmission and Networking
- Range Targets