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**Federal Aviation
Administration**

Western-Pacific Intercom



Angel Peak Radar

Receives a Polished Halo

Cover Story

Story and photos by
R. L. Jacobson
Manager, Angel Peak SFO

Some 50 miles northwest of Las Vegas, Nevada -- atop 9,000 foot Angel Peak of the Spring Mountain Range -- is located FAA Angel Peak Sector Field Office (ARSR) facility. This facility provides enroute long range radar and communications data to the Air Route Traffic Control Center (ARTCC) at Palmdale, Calif. It is also the primary sensor for the Nellis Air Force Base Enroute Automated Radar Tracking System (EARTS) NAS facility and numerous military and federal entities located within the Las Vegas area. Other facilities maintained by this Sector Field Office include Tonopah, Nevada ARSR, Apex, Nevada RMLR and TMLT, and the Nellis AFB TMLI systems.

The military type primary long range radar installed at Angel Peak is a vintage AN/FPS-20A -- a one of a kind maverick with FAA inventory. Its outdated antenna sail was the last ARSR-1 type (CA-4001) being used by FAA at any commissioned long range radar facility. For many years it had been highly desirable to upgrade the antenna system to current state of the art hardware. The availability of desired hardware was non-existent, and very little could be done to improve the performance of the old antenna system. Finally, after a prolonged period of searching and waiting, a much improved sail of the ARSR-1E type (FA-7008A) became available due to the closure of the Winthrop, Mass. ARSR facility in 1985.

Through the combined efforts of Primary Radar Programs, APM-310; Engineering and Production Branch, AAC-443; and the site SFO Manager, the project to relocate the improved performance antenna system to Angel Peak was initiated and slowly progressed through mid-1986. In order to facilitate the much larger ARSR-1E sail, the existing radome at Angel Peak had to be removed and an 18" spacer ring installed between the tower top floor and the radome. A compatible waveguide boom support had to be found,

and all had to be adapted to the existing AN/FPS-20A antenna pedestal. The sail was shipped from Winthrop. The spacer ring was fabricated by a contractor in Oklahoma for delivery in Las Vegas. The required boom support and adapter hardware was fabricated by AAC-443 and arrived with the sail in July. All required hardware was now available for antenna system change-out.

Required shut-down of the site was approved for August 4 thru 22, and project was a definite GO! A complete overhaul of the remaining antenna system was also to be accomplished at the same time while the crew was on site. Hardware for the overhaul was brought by truck from the depot by the crew. Joe Wallis and his crew from the Oklahoma City Depot, AAC-443, arrived in Las Vegas -- eager, willing and able to begin the project. They arrived at Angel Peak early on August 4. The site was shut down, and the work began. During the

Text continues on page 6.

Cover photo: An on-site technician drills holes in 18" steel radome spacer ring segments during the improvement of the Angel Peak ARSR.

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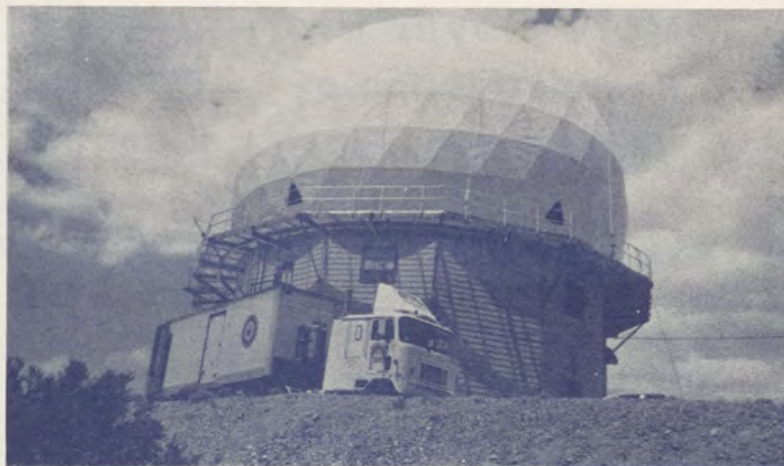
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Cover Story

The Crew Arrives -- The Work Begins

From top down -- Oklahoma City FAA Depot crew arrives at the Angel Peak Radar site. Next -- Crew members are -- from left -- Front row: Gerald Choat, Vernon Kettler, David Kennedy, Ed Cash, Richard Hughes and Foreman Joe Wallis. Back row: Warren Burgess, Marion Honeycutt, Paul Hooper, Bob Crane, Bill Poteet and Bill Rounsaville. Next -- Approximately one-third of the antenna-protecting radome is removed. Below left -- When three-fourths of the radome is removed, the ARSR-1 antenna is visible. Below right -- The crew continues to dismantle the shelter which houses the antenna.



More Cover Story Reconstruction of Radar Continues

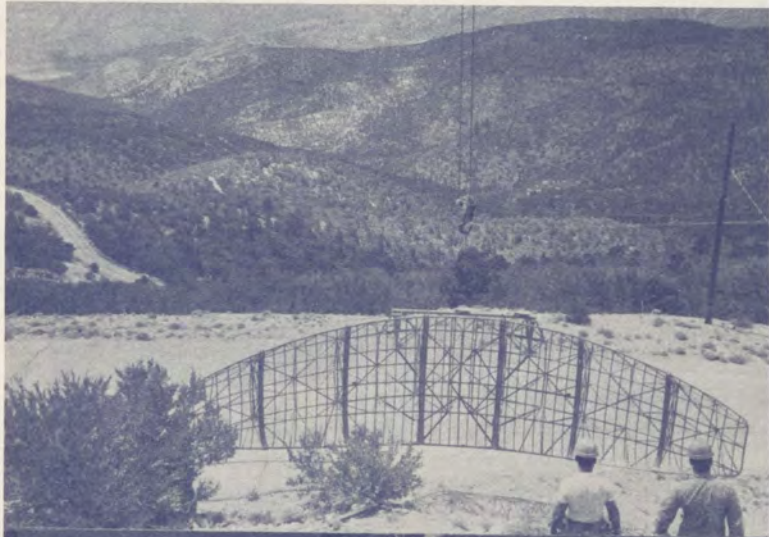
From top down -- Top -- Spacer ring is guided into place between the top floor of the tower and the new radome. Next -- The relief crew arrives from AAC-443. They are -- Front row: Tim Gardner, Gary Howard, Robert Barajas and Leonard Maldonado. Back row: Tommy French, Jim Williams, George Tennison and Eldon Jameson. Next -- Crew members prepare the drive motor, gear box and rotary coupler for installation. Below left -- Up with the bull ring for the antenna pedestal. Below right -- The new LP/CP unit is ready for installation.



Still more

The Finishing Touches

Top -- Off with the old antenna sail. Middle, left -- Electronics Technician Mark Barnes completes the ATRCB NADIF directional antenna power divider alignments. Middle, right -- Electronics Technicians John Wilson, left, and Dennis Johnson optimize the common digitizer system. Below, left -- Ernie Schmuck, site Electronic Technician, optimizes the ATRCB system. Below, right -- Dennis Whitaker, left, and Dennis Johnson compile antenna vertical electrical tilt data from solar runs.



Cover Story, continued

first six days, the old radome was removed section by section, the old ARSR-1 sail including the ATCRB directional and omni NADIF antennas were removed, the waveguide boom support was removed, the BUEC antennas were relocated for temporary use, the new antenna sail was refurbished and painted, and all replacement hardware was made ready for installation. The old existing antenna gear box, drive motor, azimuth pulse generator, bull gear beaming and rotary coupler were also removed from the pedestal.

During the next seven days, installations included the spacer ring, sail and waveguide boom support, ATCRB directional and omni NADIF antennas, feedhorn and sail, gear box, drive motor, azimuth pulse generator, bull gear bearing, rotary coupler and refurbished radome. After a new lightning arrester system was fabricated and installed, the BUEC antennas were reinstalled in original configuration. All new systems were thoroughly checked out, aligned, and made ready for operation. The crew finished late on August 16, and then departed for Oklahoma City. During their two-week stay, thunderstorms at the site delayed them approximately one and one-half days. While the crew from AAC-443 was at the site, the site Electronics Technicians were kept busy assisting in many areas. They also accomplished numerous projects that had been scheduled for this valuable period of site down-time. Once the AAC-443 crew had departed, the remaining preparation for flight check and the optimization of all electronic systems was accomplished. Solar checks were made to establish desired vertical electrical tilt and extensive testing accomplished to determine best operational parameters for all equipment. Increased antenna gain and pattern changes required optimization of all equipment and reestablishment of FAA 198 performance data. Scheduled flight check was completed on August 22 with excellent results. Site was then returned to service at 1735 hours local time.

On August 25, site SFO Manager traveled to Palmdale ARTCC to review performance data of the new system with System

Engineers, Analysts and Air Traffic personnel. All computer diagnostic programs reviewed exemplified a very definite performance improvement of the radar and beacon systems with the new antenna system. Supervisory Air Traffic personnel were contacted, and they were very pleased with the service improvement demonstrated. They expressed extreme pleasure with the enhanced radar and beacon coverage.

Through the excellent cooperation of Dana Moffatt, AAC-445C, the refurbishing contractor arrived on site to recaulk and paint the radome, which had been left bare from dismantling and reinstallation. Crew Foreman was Jim Perry. When the radome refurbishing was completed August 26, the site returned to normal. The Angel Peak ARSR site was out of service for a period of less than 19 days to accomplish this extensive and complex project. Estimated cost was just over \$100,000. (Note: A recent project very similar to this was completed by a contractor in a reported period of 120 days, at a reported cost of over \$1.2 million.)

Acknowledgements: For all their efforts and cooperation in this project: APM-310 -- Ron Johnson, Manager; Rod Mason (since retired); and Bill Lowe.

APM-162 -- Ron Stogner, Systems Analyst.

AAC-440 -- Bill Shoemaker, Radar Engineer.

AAC-443 -- Joe Wallis, Foreman.

AWP-466 -- Mike Merrill, Radar Engineer.

Los Angeles Center -- Pete Harrington, Systems Engineer, AFS and Frank Arcidiacono, Supervisory Air Traffic Controller.

Las Vegas AFS -- Dean DeShazo, Manager; John Carlson, Assistant Manager; Phil Shelstad, Assistant Manager Technical Support and Ron McGaw, General Supply Specialist.

Angel Peak SFO -- Merlin Barnes, Electronics Technician; Dennis Johnson, Electronics Technician; Ernest Schmuck, Electronics Technician; Dennis Whitaker, Electronics Technician; John Wilson, Electronics Technician; William Griffith, Electronics Technician (Tonopah SFO); and Frederic Sansone, Electronics Technician (Tonopah SFO).

The Job is Done -- The Halo is Restored

From top -- Foreman Jim Perry heads up the crew working on the caulking and painting of the new radome. Next -- Ron Stogner, left, Systems Analyst from APM-162, and Systems Engineer Pete Harrington from Palmdale Center programmed and compiled radar performance data for the new antenna system. They also assisted in site optimization including flight check coordination. Next -- A special INTERCOM thanks to Angel Peak Sector Field Office Manager R. L. Jacobson for compiling this story on the site restoration. Below, left -- The finished product -- the radar has a polished halo!



News in Brief

* No less a source of financial advice as the Wall Street Journal is counseling its readers to file the new IRS W-4 withholding form ASAP. Those frightened off by stories of the W-4's now legendary complexity run the risk of seriously underpaying their 1987 taxes, the Journal said. That could leave them owing a bundle come April 15, 1988, and also subject them to additional penalties for underpayment.

* The agency has published an updated 60-page Guide to Federal Aviation Administration Publications. This is the ninth annual addition of the Guide and lists not only FAA publications but also aviation-related materials issued by other Federal agencies such as NTSB and the National Ocean Service. The Public Inquiry Section (APA-230) has copies.

* Bridgeport, CT, has paid FAA \$10,000 in full settlement of an enforcement action alleging that the city failed to follow approved security procedures at Sikorsky Memorial Airport. According to the FAA complaint, take offs at the airport had to be aborted by the tower on two occasions because of unauthorized vehicles in the air operations area. Other charges involved deficiencies in fire fighting and rescue services.

* Honors keep coming the way of Jeff McCoy, the Chicago-O'Hare controller involved in the dramatic "Top Gun" save of an Air Force F-16C last August. Most recently, McCoy was cited by Aviation Week and Space Technology as one of approximately 75 individuals who made significant contributions in the aerospace field in 1986. His selection put McCoy in such select company as Sen. Barry Goldwater, Air Force Secretary Pete Aldridge and the crew of the Challenger space shuttle.

* With midair and near midair collisions so much in the news, the February FAA WORLD provides a timely update on the implementation plans for the Traffic Alert and Collision Avoidance System (TCAS). The issue also features the "Back to Basics" pilot education program and the 60th anniversary of aircraft certification, along with employee profiles. Look, too, for the dramatic account of an FSS specialist who was abducted at gunpoint but managed to overpower his adversary.

Crew Cited in '85 Crash

The National Transportation Safety Board has blamed pilot error for the Sept. 6, 1985, Midwest Express Airlines accident in Milwaukee that killed 31 persons. Although the DC-9 jet experienced a catastrophic failure of the right engine shortly after takeoff, the Board held that the probable cause of the accident was the "flightcrew's improper use of flight controls" in response to the emergency.

It said this led to an "accelerated stall and loss of control of the airplane." NTSB Chairman James Burnett dissented from the majority opinion, saying more emphasis should have been placed on engine failure as a factor in the accident, although agreeing that the flightcrew did not respond properly to the situation.

Hotline Answers Calls

More than 2,000 calls have been processed on the Administrator's Hotline since this direct telephone link with the agency's top management was established in August 1984.

And that's only the number of inquiries that required a formal, written response. The Hotline staff has been able to satisfy an equal number of callers on an informal basis.

Air traffic controllers have proved to be the most frequent users of the system. Of the 2,000+ Hotline calls, almost 600 came from enroute centers and 513 from airport control towers.

The major areas of interest were employment and promotion, which generated 292 calls, and classification and pay, which produced another 184.

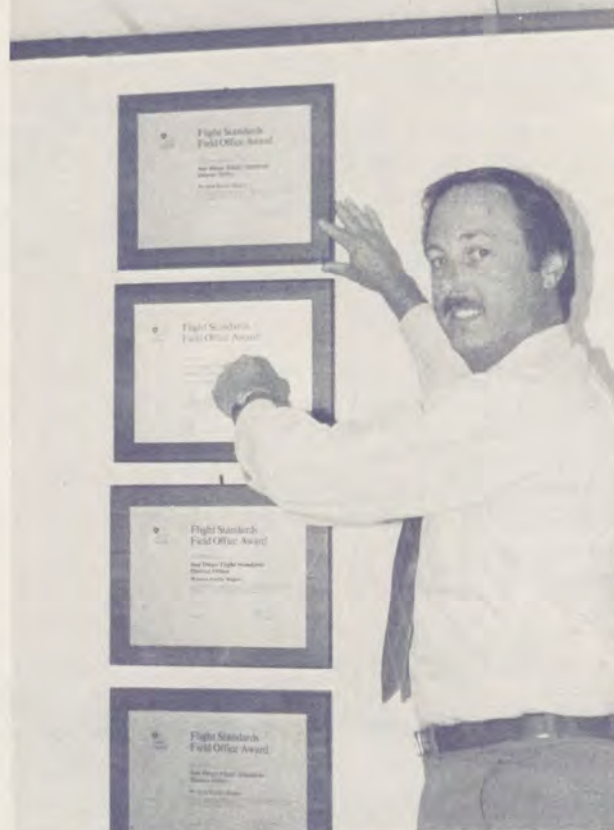
The Hotline is intended to help employees get answers to questions that could not be resolved in other ways. During working hours at Washington headquarters, employees can call FTS 267-9532 or, if an FTS line is not available, 202/267-9532 collect. There's also a toll-free number for off-duty hours -- 800/255-1111.

For better service, the Hotline staff recently expanded with Al Kaulia, a trained Airway Facilities Civil Rights investigator from the Western-Pacific Region, joining Joseph Stevens and Karen Glaspie.

San Diego FSDO's Wall of Recognition

The San Diego Flight Standards District Office (FSDO) was recently presented a Flight Standards Field Office Award for being selected as the Western-Pacific Region candidate for the 1986 National Flight Standards Field Office of the Year Award. Assistant Flight Standards Division Manager Bill Withycombe presented the award to FSDO Manager John Hull, who accepted it on behalf of the entire office staff during an all-hands meeting. The Award is based on superior performance during CY-1985 which contributed significantly to the Aviation Standards Safety Program. In fact, the San Diego FSDO had the lowest number of aircraft accidents on record during 1985. This is the eighth consecutive year the FSDO has been selected as the Regional candidate for the National Award. They were presented the National Flight Standards Field Office of the Year Awards in 1974 and 1983.

A wall in the reception area of the office is used to display the awards. The four awards in the center are the Regional Candidate Awards which Washington Headquarters initiated four years ago. The two large plaques are the National Awards and the four smaller plaques are Regional Office of the Year Awards which were presented by the Regional Flight Standards Division prior to 1983.



Photos: Top -- John Hull (right) accepts the Flight Standards Field Office Award from Bill Withycombe.

Below -- Human Relations Committee Chairman Ben Schene adds the new plaque to the wall display.



First Mode S Installation Certified for Operation

FAA has certificated the first airline installation of the Mode S transponder.

The equipment is installed in a United Airlines Boeing 737 that will be used in the FAA-industry operational evaluation of the Traffic Alert and Collision Avoidance System (TCAS) that is scheduled to begin in May. Known as the Limited Installation Program (LIP), this effort is designed to answer any remaining operational questions about TCAS before its use becomes mandatory through rulemaking.

The Mode S in the United jet was manufactured by Allied Bendix of Ft. Lauderdale, FL., which also made the TCAS units being used by United in the LIP. TCAS uses the Mode S automatic data link capability to coordinate collision avoidance maneuvers with other TCAS-equipped aircraft.

Three Executives Shifted

Administrator Engen has announced top level personnel shifts involving Paul Bohr, Director of the Great Lakes Region; William Pollard, Deputy Director of the Southern Region and Arlene Feldman, Deputy Director of the Technical Center.

Bohr will take over direction of the Central Region, replacing Ed Harris who recently moved to Washington as Associate Administrator for Development and Logistics. It will be something of a homecoming for Bohr who is a graduate of Kansas University and began his FAA career as an electronics engineer in Kansas City, Mo.

A former controller and 23-year FAA veteran, Pollard will replace Bohr as Director of the Great Lakes Region. He has held the No. 2 post in Atlanta since Sept. 1985.

Feldman, a lawyer and pilot, will become the Deputy in the Western-Pacific Region, replacing Keith Potts who now is Associate Administrator for Air Traffic. Prior to joining FAA in Aug. 1985, she was Director of New Jersey's Division of Aeronautics.

Mode C Made Mandatory

In a move aimed at providing increased collision avoidance protection at major airports, FAA will require all aircraft operating in terminal control areas (TCAs) after Dec. 1, 1987, to carry an altitude-reporting (Mode C) transponder.

The action will impact the 14 designated Group II TCAs that now require a transponder which reports position but not altitude. The Mode C transponder already is mandatory equipment in the nine Group I TCAs.

The same rulemaking also requires that all transponders installed in aircraft after Jan. 1, 1992, must meet the new Mode S (selective address) requirements. However, pilots will be allowed to fly with present generation transponders after that date until the equipment is replaced.

Flight Standards Awards

Congratulations to the following Flight Standards folks who recently earned awards.

Special Achievement Award (Outstanding Rating) -- Jimmy Shamp, Fresno Flight Standards District Office; James Martin, Honolulu FSDO; Samuel Matsumoto, Honolulu FSDO and Terry Gordon, Oakland FSDO.

Special Achievement Award (Special Act) -- Joseph Rotelli, AWP-205; John Roach, AWP-250; Dennis Fogarty, Los Angeles FSDO; Mark Humphreys, Los Angeles FSDO; Gerald Parrot, Los Angeles FSDO and Reid Walburg, Los Angeles FSDO.

Letters of Appreciation -- William Matson, Sacramento FSDO; Paul Bigler, Sacramento FSDO; David Smith, Sacramento FSDO; Paulus Van Emmerick, Oakland FSDO; Richard Merriman, Oakland FSDO; Frank Moore, Las Vegas FSDO; Larry Fann, Las Vegas FSDO and Donald Morgan, Las Vegas FSDO.

Career Service Emblems, 3 years -- Michael Spencer, Van Nuys FSDO; Clinton Ahyou, Van Nuys FSDO; Phyllis Cleveland, Fresno FSDO; Jennifer Lefler, San Diego FSDO and Gerald Parrot, Los Angeles FSDO.

15 Years -- Timothy Forte, AWP-200; Duane Christensen, AWP-250; Christine Kandziora, Scottsdale FSDO and Roy Billings, San Diego FSDO.

30 Years -- Walter Gerber, San Francisco FSDO and Thomas Vandervelde, Los Angeles FSDO.

Controller Jobs Open in Region

The FAA Western-Pacific region is recruiting air traffic controllers for positions in airport traffic control towers and air route traffic control centers in Arizona, California, Hawaii and Nevada.

To be a controller at a tower or center, an applicant must be a U.S. citizen no more than 30 years of age and have three years general work experience and/or education above the high school level. The applicant must pass the air traffic control exam with a high score and meet medical, psychological and security standards.

Interested applicants should send postcards with their names and addresses to the Federal Aviation Administration, AWP-14T, P.O. Box 92007, WWPC, Los Angeles, CA 90009-2007. Applicants should indicate on the postcard a testing site choice.

For further information, contact Sally S. Goya, Personnel Specialist, at 213/297-1291.

We The People

In this year of celebration of the anniversary of the 200th anniversary of the final approval of the U.S. Constitution, it is a time to remember the work of 55 men who met to frame this document. Elder statesmen like George Washington and Benjamin Franklin contributed little to the debates but greatly to the stability and inspiration of the convention. Thomas Jefferson, perhaps the most brilliant American of those days, missed the meetings entirely; he was on diplomatic duty in France.

So who were the leaders who were the determining force behind the formation of government? A handful of truly great men were responsible for the central work, including James Madison and George Mason of Virginia, Roger Sherman of Connecticut, James Wilson and Gouverneur Morris of Pennsylvania. Although Alexander Hamilton of New York did not speak much, he exerted considerable influence.

Look for more briefs on the formation of the Constitution in future INTERCOM editions.

PCS Vouchers Watched For Fraudulent Claims

Recently, the Office of Inspector General (OIG), completed surveys of Permanent Change of Station (PCS) vouchers submitted to the various accounting offices in the FAA. The results of these surveys indicated that there were some serious problems with a significant number of PCS vouchers forwarded to the accounting offices for payment. A number of these suspicious claims have since been given to the Civil Aviation Security Divisions for investigation of possible fraud.

In view of this, vouchers are being reviewed even more closely for questionable claims that might require investigation. Travelers and authorizing officials should be aware of the consequences for filing fraudulent travel vouchers, which include possible forfeiture of entitlements and disciplinary action, which can be as severe as removal.

Public Affairs Searching For Missing Film

The Public Affairs Office is missing its two-cassette video entitled "Unchained Goddess." This film is a partially animated study of weather phenomena.

Please look through your videos and contact Public Affairs, AWP-5, at FTS 984-1431, if you locate it.

PWC Notes

Professional Women Controllers, Inc., hosted a hospitality suite at the recent Air Traffic Manager's Conference, held at the Frontier Hotel in Las Vegas, Nevada.

A big thanks to Las Vegas TRACON controllers Sandy Johnson and Elizabeth Storey, for their help in organizing and planning this get-together.

The 1987 Ninth Annual Convention registrations are available. Make plans to attend now!

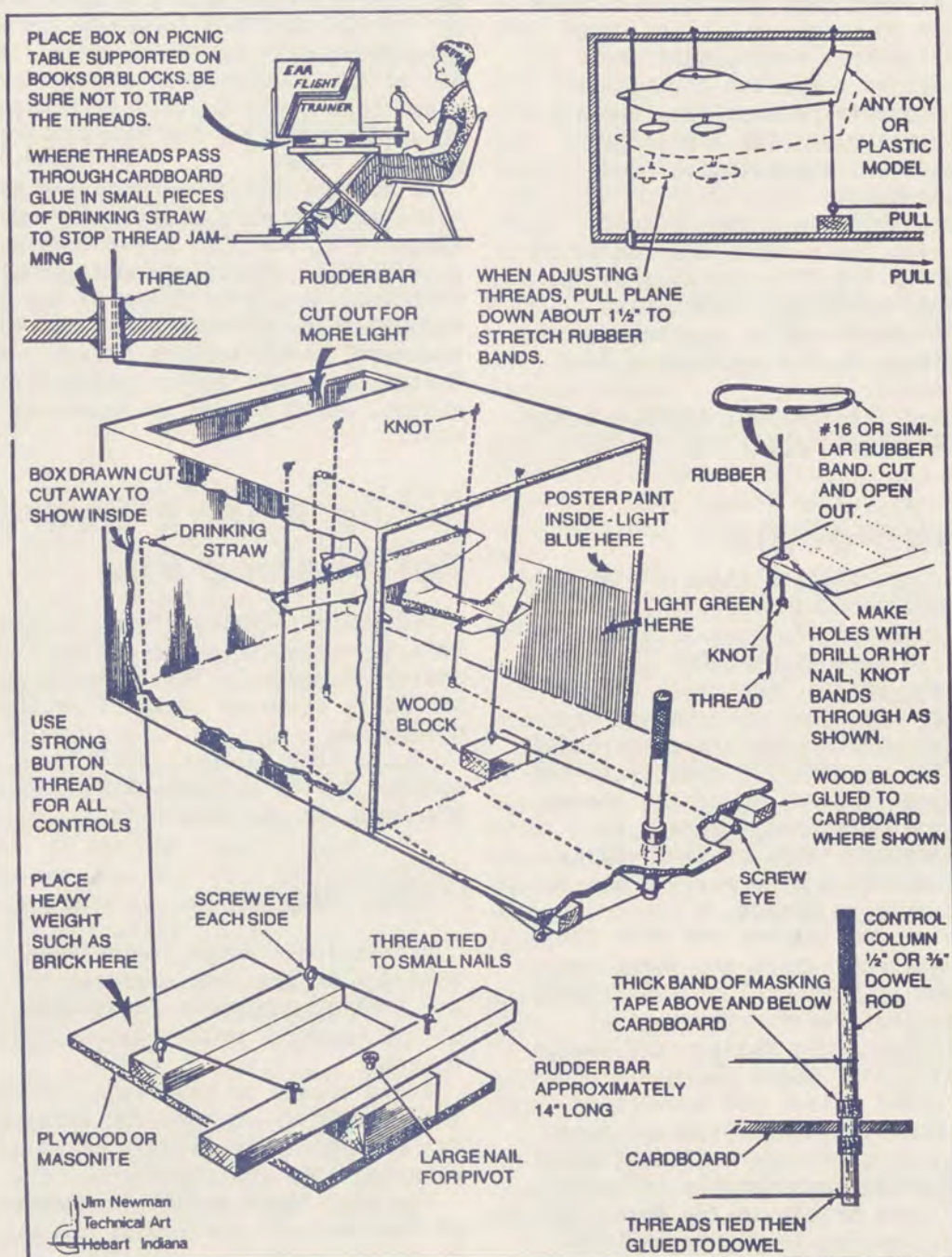
AVIATION EDUCATION IN ACTION.....What is this? Why, it's plans for a cardboard box "simulator". You may wish to make this for your own "kids" or to share with your local teacher.

EAA AEROTIVITIES

EAA PROJECT SCHOOLFLIGHT NEWS - February, 1986

This EAA FLIGHT TRAINER is an interesting "hands on" project and the first of a series of flight simulators. Basic tools and a minimum investment of time and money will complete this simulator for your home or classroom. It is an ideal project to introduce students to the concepts of craftsmanship and quality on which EAA Project Schoolflight is based.

AVIATION EDUCATION



Our thanks to Jim Newman, EAA 109981, for "refining" the design of this trainer and providing this beautiful artwork. -Ed.-