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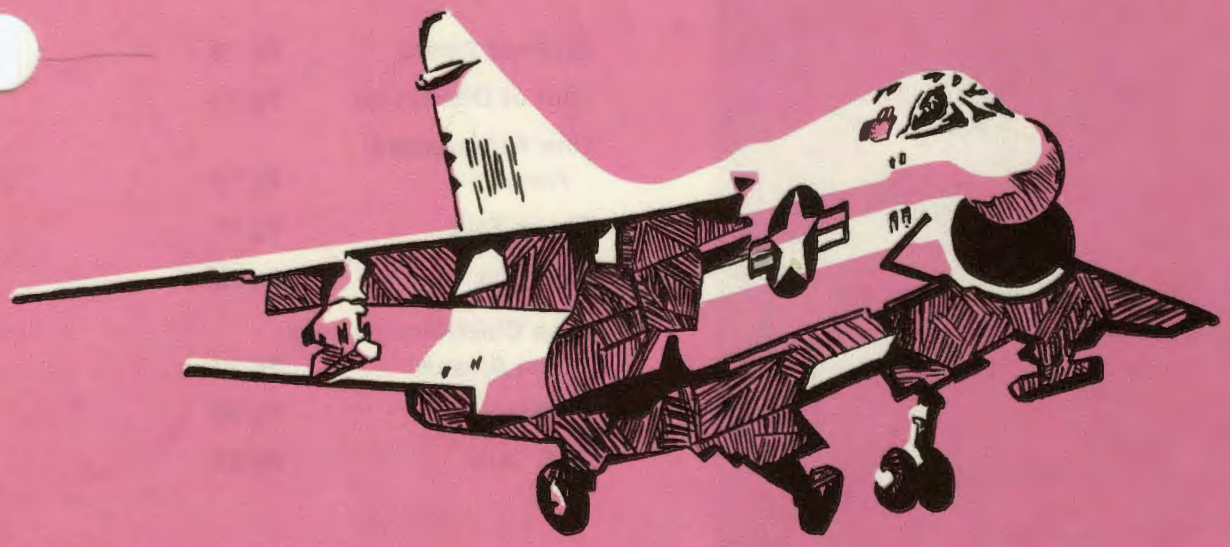
TAC ATTACK

MAY 1970



HARDISON

HERE COMES A CORSAIR...Page 4

for efficient tactical air power

TAC ATTACK

MAY 1970

VOL. 10 NO. 5

TACTICAL AIR COMMAND

COMMANDER

GENERAL WILLIAM W. MOMYER

VICE COMMANDER

LT GEN JAY T. ROBBINS

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JAMIE SEZ;

He who "presses on" to complete routine training ,may never see combat.

current interest

departments

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Angle of ATTACK

The individual is gone ?

In my last two Angle of Attacks, as well as other parts of this magazine, we have stressed supervision. And findings of supervisory error as primary or contributing in many of our accidents and incidents also indicates that more and stronger responsibility is being required of the IP, supervisor, or whoever is in charge . . . all the way up the chain of command.

Some of you may feel this has gone overboard; that you are over-supervised to the point that it takes away all personal initiative, and eliminates the old American ingenuity of an individual coming up with a better mousetrap. I am sure some of you may dislike the approach and methods, however our results have indicated progress. In the flying business, these strong controls and pressures on supervisors have developed into a way of life. And though it is tied directly to the old and never-ending problem of controlling expenditures of the dollar, its first function is still an attempt to hold down needless loss of life and equipment while getting the job done.

Though sometimes it's hard to see, individual responsibility is still present. As our weapons systems become more complicated, the degree of acceptance of this responsibility by each person at his individual job is the final ingredient that either makes or breaks a unit. Nowadays, this separates the men from the boys.

Though the day to day rush may be pressing, there are many means available to the individual to express or bring to the attention of others, ideas that will improve working conditions, or possibly be that better mousetrap. OHRs, URs, EUMRs, and the Suggestion Program are a few. Bull sessions with the boss, on and off duty, during a coffee break, or at beer call just might break that communications gap and result in more efficiency. And you might be surprised, or at least confirm something that you suspected all the time: your supervisor, while working hard at his job and busily looking over your shoulder because of higher-up pressure, sometimes can't really see the trees. The fallout just might help you, your unit, and the Air Force. An unnecessarily compressed schedule could be corrected, or at least the self-satisfaction of getting the problem out in the open will help.

Full acceptance of individual responsibility is the only key that can open the door to a smooth operation. Supervision can go just so far. In most cases, it finally boils down to that one person performing correctly in a cockpit, at a desk, bending a wrench, or what have you. It's then that he realizes that rewarding feeling of a job well done. It's also possible that This same person can tarnish our fine command record and become part of a bad statistic.

In one way or another, we are all directly involved in this safety business.

Virgil K. Meroney

VIRGIL K. MERONEY, Colonel, USAF
Chief of Safety

Transient Alert and the A-7D

The Air Force's newest attack fighter will soon be seen at air bases throughout the country, and especially at TAC installations normally used for cross-country training. When this time comes, transient alert crews will get their first chance to service the A-7D Corsair II!

Some call the Corsair the ground crewman's dream, and there are many reasons why. But as in most dreams the scene can shift, seemingly without rhyme or reason, ending in nightmares. The A-7D offers this possibility too, but it's usually the ground crew who makes the ch... However, the Corsair can be serviced with ease, assu... proper respect is given to the bird's mechanical syste..., and a safe distance is maintained while the engine is operating.

Unlike some new aircraft systems, the A-7D is not expected to require the usual period of "getting acquainted." Many of her characteristics are already known from her sister ships, the A-7As and Bs, which have been in the Navy inventory for about five years. Except for the "D" model's bigger engine and a few lesser modifications, all are a lot alike.

On arrival at the parking ramp, transient alert crewmen will note the shrill and intense sound from the Corsair's TF-41 turbofan engine. This is no time to be without muffs or ear plugs, which are required within 150 feet at idle, and 500 feet at military.

The arriving pilot will probably expect the usual tire check before engine shutdown, then he's ready for chocks. Installing gear down locks and pins are next: the nose lock is stowed in the cockpit step well, and main gear lock blocks are stowed in the nose wheel well.

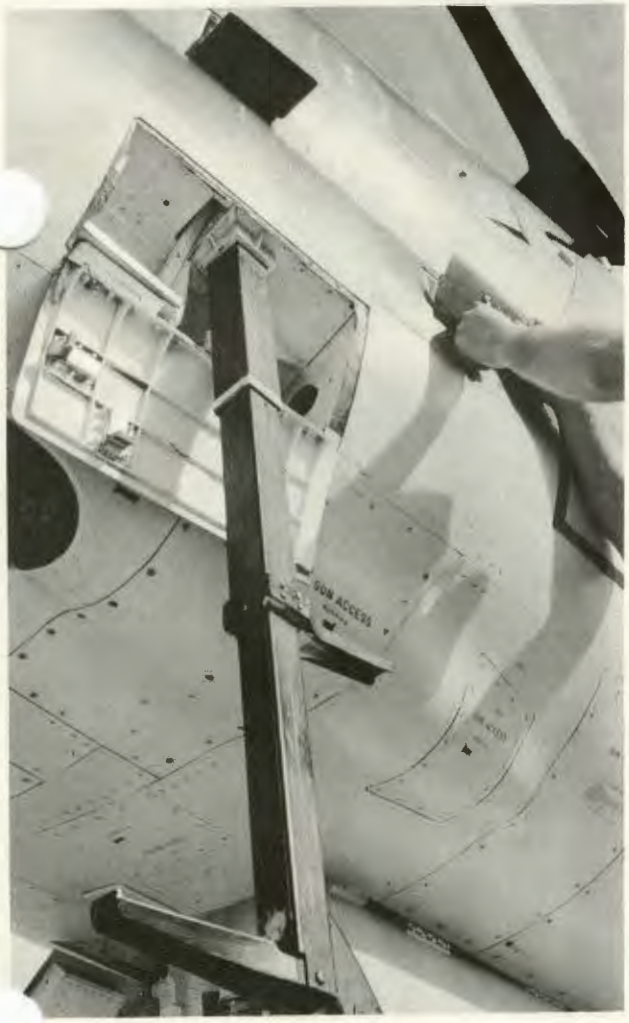
On signal to the pilot that gear is locked, he will shutdown. Here's where the alert crew has it easy. All of the emergency accumulators can be dumped (bleed-off pressure) from one position in the right main gear we... simply turning one valve.

The crew chief needn't worry about having a co... ladder waiting, there's one built into the left side of the bird. A screwdriver is handy to punch the flush mounted push button latches which open the cockpit ladder well and the two retractable steps above the ladder. The ladder telescopes to near ground level by simply applying a little finger pressure on a retaining latch.

Mounting the steps, a crewman can assist the pilot as usual. The pilot has already deactivated the whole ejection system while on the taxiway by simply pulling down the ejection seat safety handle, or "head knocker" as it is commonly called at the A-7D's home patch. However, two safety pins are required in the cockpit. One secures the emergency canopy release handle, located slightly above and forward of the throttle; and the other secures the seat initiator, located behind headrest on the left side.

When it comes to turn-around and launch, transient alert really has it made. Ninety percent of all service and maintenance can be done from ground level, there's no drag chute to be replaced, and no ground power equipment is necessary for engine start.

Refueling and hydraulic service can be accomplished via the roomy main gear openings. And electrical, communications, oxygen, and engine components are accessible through ground level panels opened easily



Getting a transient A-7D serviced and on its way can be done with little muss or fuss. Opposite Page: Stopping the arriving aircraft just short of its parking spot gives ground crewman an opportunity to make a 100-percent tire check; then she's ready for chocks. Upper Left: Gear downlocks are installed next. The nose gear lock is stowed in the cockpit ladder door, and main gear blocks (Upper Right) are stowed in nose wheel well. After engine shutdown signal, the cockpit ladder is telescoped down and two retractable step wells opened. When ascending the ladder to assist the pilot, ground crewman should use caution. The ladder is firm and entirely adequate but the amount of foot and handhold space is considerably less than the usual external ladder. Two pins to safety the seat ejection system initiators are stowed in the cockpit. The pilot can reach and install the one for the emergency canopy release handle, but ground crewman must insert the safety pin in the seat initiator, back of the headrest left of center.

A-7D

push-button latches instead of the usual dzus fasteners.

Another feature, especially for ground crewmen, is step-by-step checklists permanently mounted on the main gear doors. The checklists cover all routine servicing procedures including refueling, hydraulic and accumulator pressures.

A real ground crewmen's dream! But as mentioned earlier, a nightmare possibility exists. The big one is the air intake. It's big, it's low, and the TF-41 turbofan engine draws like a Texas plains tornado. The Navy has recorded more than one accident where ground personnel became careless. The only thing between the A-7D intake and its whirling front engine compressor is about 20 feet of slick walled 'gullet,' plenty wide enough to swallow easily a two to three-hundred pound man.

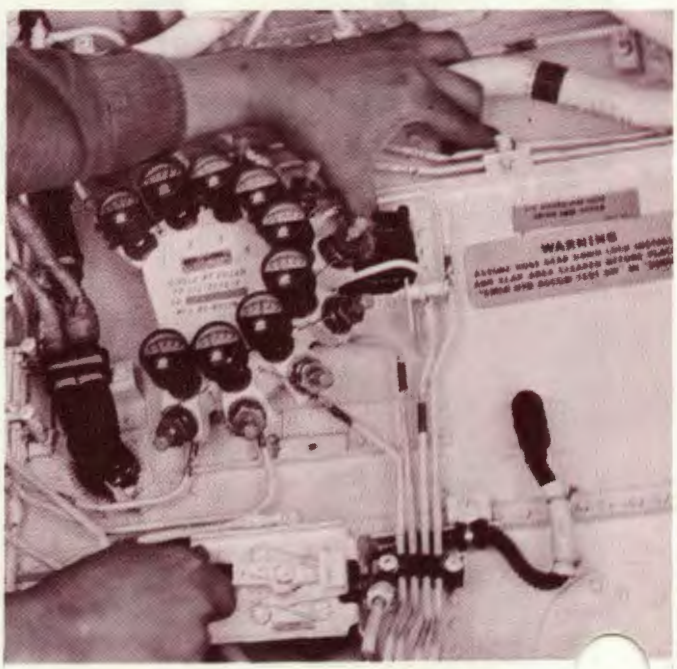
Though the retractable cockpit steps are convenient and sufficiently rugged, lots of handhold space, available on most cockpit ladders, simply doesn't exist. Mount these steps slow and easy, giving the upper steps as much shoe sole as possible.

There is plenty of headroom under the wings, but beware of those permanently mounted pylons. Their thin and streamlined configuration offers several sharp angled edges that can easily crease the cranium of the unwary, especially when working in the main gear well servicing areas.

The gun purge door on the left side, below and aft of the cockpit, will close on engine start; the hydraulic tailhook lowers fast; and the engine starter exhaust gets hot, so stay clear of these areas, at engine start and when the pilot is accomplishing controls check.

When crossing under from one side of the bird to the other, ground crewmen should pass immediately forward or immediately aft of the nose wheel, or aft of the tailhook but forward of the tailpipe.

Be sure to check tech orders for procedure details and the danger diagrams that show critical distances for each hazard area. As said before, the A-7D is a transient alert dream; but a nightmare isn't impossible . . . it's up to you!



big attraction in servicing the Corsair II is safety, convenience, and accessibility to the various systems. But hazards do exist and the gaping intake is one of the most obvious. Its low level combined with the high volume of air demanded by the TF-41 turbofan creates a suction danger area unusual in the Air Force. Upper Left: Crossing over too near the inlet, even at idle thrust, means FOD from personnel pockets like the rag shown here, or it could be safety pins with streamers, hats, small tools, or at high thrust, the crewman. Above: Most turn around service is done via the spacious main gear bays, and step by step checklists for each kind of service are permanently mounted on the main gear doors. Left: All accumulators are serviced from the right wheel well. Gauges for testing, and controls for dumping are all in easy reach. Right: Refueling manifold and ground are in the left wheel well, including complete checklist.

ADVISORY CIRCULAR

SEVERE

You've heard these pilot "war stories" in bars and briefings: "Center vectored me into the meanest monster within a hundred miles," or "Approach brought us down through more ice, turbulence, and lightning than the law allows!"

We're concerned about pilots not having seen (or forgotten!) FAA's Advisory Circular 90-12, on Severe Weather Avoidance. Read it carefully. It's apparent that many pilots do not understand what air traffic controllers can and cannot do. This Circular will recalibrate (or refresh) their thinking. We thought of adding underlining for emphasis in some areas, but decided against it. You might be tempted to read only the underlined portions and miss the "sense" of the Circular.

1. PURPOSE. This Advisory Circular (1) warns all pilots concerning flight in the vicinity of known or forecast severe weather such as thunderstorm activity, severe turbulence and hail, (2) advises all pilots that air traffic control facilities (Air Route Traffic Control Centers, Control Towers, Approach Control facilities, etc.) even though equipped with radar, might not always have the capability nor be in a position to provide assistance for circumnavigation of areas of severe weather, and (3) recommends certain practices for air traffic controllers in assisting pilots with respect to severe weather phenomena.

2. DISCUSSION. The need for exercising prud

WEATHER AVOIDANCE

AC NO: 90-12

AIR TRAFFIC CONTROL AND GENERAL OPERATIONS

judgment with regard to flight through areas of known or forecasted severe weather is well recognized by experienced airmen. Flight through severe weather activity should be avoided if possible.

Present procedures provide for controllers assisting pilots, particularly when operating on IFR flight plans, in avoiding areas of known severe weather. It is important, however, that all parties concerned with aircraft flight operations be fully aware that there are, at times, limitations to an air traffic controller's capability to provide such assistance. There are several reasons for this. First, it should be recognized that the controller's primary responsibility is the provision of safe separation between aircraft. No additional services can be provided which will derogate performance of a controller's primary responsibility. Secondly, limitations of ATC radar equipment, communications congestion, other air traffic, etc., may also reduce the controller's capability to provide any additional services.

To a large degree the assistance that might be rendered by ATC will depend upon the weather information available to controllers or the request by pilots desiring to avoid severe weather areas. Due to the extremely transitory nature of severe weather situations, information available to controllers might be of only limited value unless frequently up-dated by pilot reports or radar weather information.

In-flight reports from pilots in direct communications with controllers giving specific information as to area affected, altitudes, intensity and nature of severe weather can be of considerable value. Such reports when received by controllers should be relayed to other aircraft as appropriate.

Should a pilot desire to avoid a severe weather situation along his route, he should request such deviation from route/altitude as far in advance as possible, including information as to the extent of deviation desired. Controllers should bear in mind that limitations of airborne radar, limited flight visibility and the speed of modern aircraft may result in pilots having only a limited amount of time in which to avoid a detected weather condition they might wish to avoid.

Obtaining IFR clearance to circumnavigate severe weather can often be accommodated more readily in the en route areas away from terminals because there is usually less congestion and therefore greater freedom of action. In terminal areas the problem is more acute because of traffic density, ATC coordination requirements, complex departure and arrival routes, adjacent airports, etc. As a consequence, controllers are less likely to be able to accommodate all requests for weather detours in a terminal area or be in a position to volunteer such routes to the pilot. Nevertheless, pilots should not hesitate to advise controllers of any observed severe weather and should specifically advise controllers if they desire circumnavigation of observed weather.

3. WEATHER PHENOMENON AS OBSERVED ON RADAR. It must be recognized that those weather echoes observed on radar (airborne or ground) are a direct result of significant precipitation. Radar does not display turbulence. It is acknowledged that turbulence is generally associated with heavy areas of precipitation; however, all radar utilized for air traffic control purposes is not capable of equally displaying precipitation information. Under certain conditions in the past, the echoes received from precipitation have rendered ATC radar unusable. To avoid such disruption to radar service, modifications designed to considerably reduce precipitation clutter have been

added to ATC radar systems. This feature known as Circular Polarization eliminates all but the heaviest areas of precipitation. Consequently, all areas of precipitation will not appear on the controller's radar scope.

In accordance with current procedures, controllers will provide information concerning severe weather echoes observed on their radar when deemed advisable and will, upon pilot request, provide vectors for avoidance whenever circumstances will permit. However, for the reasons outlined above, it is emphasized that pilots should not completely rely on air traffic controllers to provide this service at all times, particularly in terminal areas or in holding patterns. Pilots should also recognize that the controller's data is often far from complete due to the design of the radar and its location relative to the weather observed.

In addition to primary surveillance radar, all Air Route Traffic Control Centers and some terminal facilities are also equipped with secondary radar systems. These secondary systems receive only those signals emitted by airborne radar beacon transponders and do not display weather echoes. Since all aircraft operating in positive control areas are required to be equipped with operating radar beacon transponders, controllers handling such traffic normally utilize only the secondary radar system. This permits filtering out non-pertinent traffic operating below the positive control areas. Although controllers using only secondary radar will not observe any weather on their scopes, they can, if alerted, often turn on the normal radar to observe weather, provided this will not result in weather clutter rendering the scope unusable for traffic control. One exception is the Great Falls ARTC Center which, at this time, does not have this capability.

4. RECOMMENDED ACTIONS:

a. Pilots:

(1) Avoidance of known severe weather – Recent research has proven beyond any doubt that all thunderstorms are potentially dangerous and should be avoided if possible or penetrated only when the pilot has no other choice.

(2) Forward reports to ATC of any se weather encountered giving nature, loca route, altitude, and intensity. Pilots are also reminded to review Federal Air Regulation 91.125 pertaining to pilot reports.

(3) Initiate requests to avoid severe weather activity as soon as possible being specific concerning route and altitude desired. Pilots are reminded to review the Flight Information Manual pertaining to "Detouring Thunderstorms" and "SIGMET Procedure."

(4) Adjust speed as necessary to maintain adequate control of aircraft in turbulent air and advise ATC as soon as possible.

(5) Do not rely completely on air traffic controllers to provide information or to initiate radar vectors to aircraft for avoidance of severe weather particularly when arriving and departing terminals or in holding patterns.

(6) Plan ahead to anticipate the need for avoiding areas of known severe weath necessary, delay takeoff or landin applicable.

b. Controllers:

(1) Suggest utilization of alternate routes, whenever possible, to avoid known areas of severe weather along normal or requested routes.

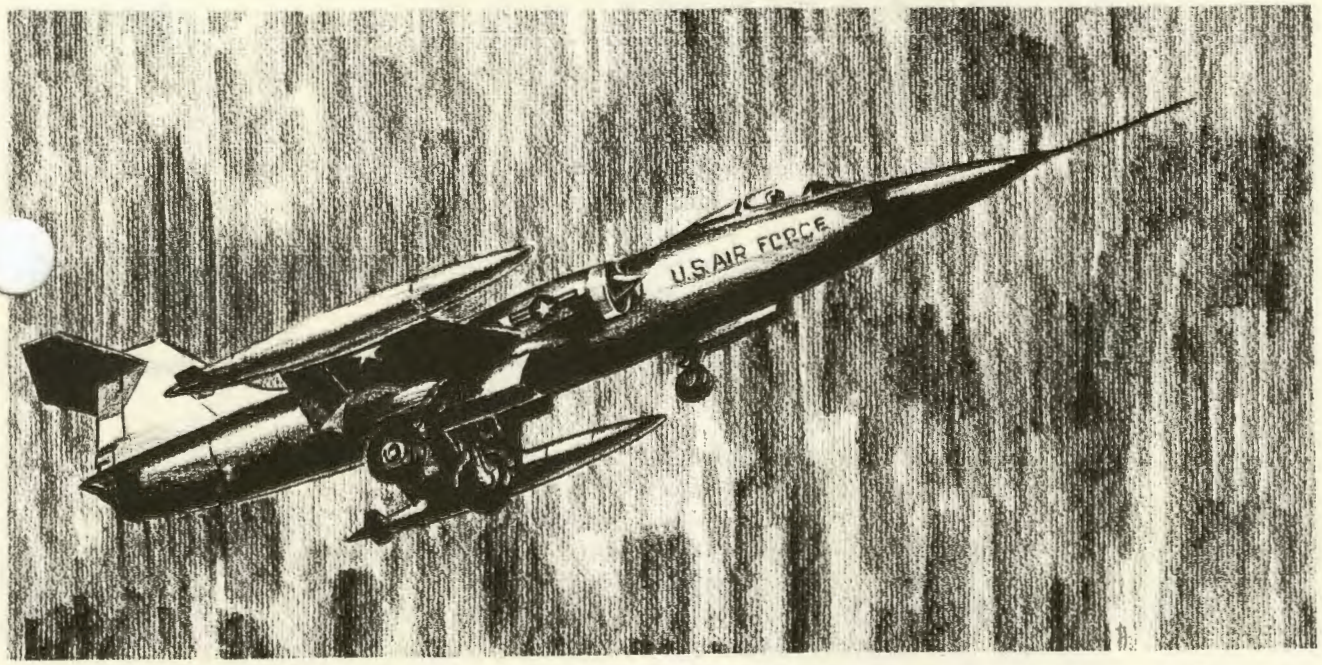
(2) Expedite action on requests for route/altitude deviation to avoid known areas of severe weather. Such requests are time critical.

(3) Relay pilot reports of severe weather or other flights as appropriate and, if necessary, initiate requests for additional reports to aid in anticipating requests for detours.

(4) Plan ahead when known areas of severe weather conditions exist and provide pilots with maximum information, rendering assistance in avoiding such areas when requested. →

Pilot of Distinction

1Lt Lorenzen-Schmidt



First Lieutenant Hans-Ulrich Lorenzen-Schmidt, of the 418 Tactical Fighter Training Squadron, Luke Air Force Base, Arizona, has been selected as a Tactical Air Command Pilot of Distinction.

Lieutenant Lorenzen-Schmidt was flying a gunnery mission in an F-104G during his advanced fighter training. During his first rocket pass on the climb to downwind his engine flamed out at an altitude of 4000 feet AGL and an airspeed of 300 KIAS. He tried to restart the engine without success. Knowing he must maintain relight airspeed he put the aircraft in a descent and tried again to start the engine. The engine failed to respond. Realizing he was approaching decision altitude for bailout at his airspeed and aircraft attitude, he elected to try another quick airstart by stopcocking the throttle and immediately returning it to military. This time the engine started. After notifying his flight instructor he headed for Gila Bend Auxiliary Air Field. He made a perfect landing using takeoff flaps, even though his aircraft had ordnance remaining and a heavy fuel load.

Lieutenant Lorenzen-Schmidt's professional airmanship during a critical inflight emergency readily qualifies him as a Tactical Air Command Pilot of Distinction.

Tactical Air Command

UNIT ACHIEVEMENT AWARD

Our congratulations to the following units for completing

1 Combat Crew Training Squadron, Clinton County Air Force Base, Ohio
1 April 1968 through 31 March 1969

4424 Combat Crew Training Squadron, MacDill Air Force Base, Florida
1 December 1968 through 30 November 1969

4453 Combat Crew Training Squadron, Davis-Monthan Air Force Base, Arizona
1 December 1968 through 30 November 1969

132 Tactical Fighter Group, Des Moines Municipal Airport, Iowa
1 January 1969 through 31 December 1969

132 Tactical Fighter Wing, Des Moines Municipal Airport, Iowa
1 January 1969 through 31 December 1969

4472 Combat Crew Training Squadron, Davis-Monthan Air Force Base, Arizona
1 January 1969 through 31 December 1969

4457 Combat Crew Training Squadron, Davis-Monthan Air Force Base, Arizona
1 January 1969 through 31 December 1969

313 Combat Support Group, Forbes Air Force Base, Kansas
1 January 1969 through 31 December 1969

18 Tactical Airlift Training Squadron, Dyess Air Force Base, Texas
1 January 1969 through 31 December 1969

348 Tactical Airlift Squadron, Dyess Air Force Base, Texas
1 January 1969 through 31 December 1969

302 Tactical Airlift Wing, Clinton County Air Force Base, Wilmington, Ohio
1 January 1969 through 31 December 1969

928th Tactical Airlift Group, Chicago-O'Hare International Airport, Illinois
1 January 1969 through 31 December 1969

4409 Support Squadron, Homestead Air Force Base, Florida
1 January 1969 through 31 December 1969

4406 Combat Crew Training Squadron, Hurlburt Field, Florida
1 January 1969 through 31 December 1969

12 months of accident free flying:

7 Special Operations Flight, Otis Air Force Base, Massachusetts
1 January 1969 through 31 December 1969

58 Combat Support Group, Luke Air Force Base, Arizona
1 January 1969 through 31 December 1969

319 Special Operations Squadron, Hurlburt Field, Florida
1 January 1969 through 31 December 1969

4407 Combat Crew Training Squadron, Hurlburt Field, Florida
1 January 1969 through 31 December 1969

4517 Combat Crew Training Squadron, Luke Air Force Base, Arizona
1 January 1969 through 31 December 1969

[illegible] Combat Crew Training Squadron, Luke Air Force Base, Arizona
1 January 1969 through 31 December 1969

4515 Combat Crew Training Squadron, Luke Air Force Base, Arizona
1 January 1969 through 31 December 1969

Detachment 2, 1 Special Operations Wing, Pope Air Force Base, North Carolina
17 January 1969 through 16 January 1970

USAF Demonstration Squadron "Thunderbirds," Nellis Air Force Base, Nevada
10 February 1969 through 9 February 1970

317 Tactical Airlift Wing, Lockbourne Air Force Base, Ohio
14 February 1969 through 13 February 1970

40 Tactical Airlift Squadron, Lockbourne Air Force Base, Ohio
14 February 1969 through 13 February 1970

336 Tactical Fighter Squadron, Seymour Johnson Air Force Base, North Carolina
15 February 1969 through 14 February 1970

4535 Combat Crew Training Squadron, George Air Force Base, California
22 February 1969 through 21 February 1970

4430 Combat Crew Training Squadron, Myrtle Beach Air Force Base, South Carolina
1 March 1969 through 28 February 1970

CHOCK TALK ...incidents and incidentals

chock talk ...incidents and incidentals

case of the phantom cotter

During formation tactics training, an AC advanced throttles to 100 percent while turning his F-4D. Out of the turn, he retarded throttles, but the left engine kept going full bore. He pushed the left throttle through the full range once more, but no response. So, he put it in cut-off and turned off the left engine master switch.

After recovery at his home base, maintenance men found a bolt and castellated nut missing, the one that connects the torque booster arm to the clevis and the throttle crossover shaft connector arm. The bolt and nut were found on the engine bay door, but the required cotter pin could not be found.

The plane had flown a little more than four hours since a left engine change, and it is believed that installation of the cotter pin was missed during engine buildup. The second engine saved this bird . . . which almost was doomed for need of one correctly installed, two-for-a-nickel cotter pin!

tough rap

With the preflight accomplished, the F-105F crew was ready to launch. After a normal start, the engine reached 60 percent RPM, then flamed out.

Investigation showed that two terminal ends were loose at a cannon plug between the engine shutoff switch and the rear cockpit fuel control panel. The improperly crimped leads allowed intermittent movement of the main fuel shutoff valve.

The last maintenance in this area was performed 35 missions before, during a depot level TCTO compliance. This is a tough one for a crew chief, but he repaired the circuits and fired off an EUMR, his only way of trying to prevent a similar problem at another time.

jammed flight controls

After a normal taxi and takeoff, the F-100 jock completed the briefed SID and rendezvoused with his flight. At fuel check, he had 2000 pounds less than the others so he decided to stay in the local area while the other two completed the mission.

About the time he pulled away from the flight, he noted that movement of the control stick forward and aft was becoming difficult. He made a controllability check and decided he could get on the ground. He started a long straight-in approach. With gear and flaps down, it took both hands to hold the nose down, and trim wouldn't work. He found that half flaps gave better control that's they way he brought it in . . . no sweat.

Previous to the flight, the aft section had been removed. Now, on the ground they took a good look at the control system and found that the top left slab cable was caught on the pulley bracket above the left forward engine mount.

A maintenance briefing followed, outlining the importance of a controls check after any aft section maintenance.

sticky service

Beginning a go-around from an airborne radar approach, the RF-4C pilot pushed the gear handle up. The gear responded, coming up part way. Then pulsated up and down while remaining in intermediate position, according to the wingman. The troubled jock pushed the handle down and the gear checked down and locked.

He called it a day and made a straight-in approach, stopping on the runway to have the downlocks installed. On the parking ramp maintenance men found the problem. Corrosion between the main landing gear actuator and downlock arm caused the arm to stick. Th

with a maintenance slant.

in turn caused loss of electrical power to the landing gear selector valve during gear operation.

A briefing followed for all maintenance personnel, reference Workcard 3-17, Item 3, which calls for lubrication of the corroded area after the last flight of the day.

fatigue trap

A young airman was performing a phase check on a Phantom emergency escape system. It was his 16th system check for the day without a partner, as required by tech order. He applied 3000 PSI in accordance with his checklist and an initiator fired.

He wasn't hurt, but his pride was pretty well bent because he had failed to disconnect the lines to the initiator and install a bypass tube.

The three-striper's supervisor took the count for requiring the technician to work without the required assistance. But it undoubtedly was fatigue and repetitive procedure that caught the airman off guard and cost him disqualification.

nice guy

All four engines of a C-130 were being run up to check out prop flux, and guess where? On the parking ramp! A C-47 was chocked and tied down behind the big bird, but just for a little while. Prop blast from the Herky moved old Gooney till the chocks were pushed aside. As the poor, picked-on bird moved backward the left tie-down rope broke, then the right tie-down attach point was pulled out of the wing. Shortly, the C-47's right wing scraped a parked B-57 and then came to rest against it. This trip of about 175 yards cost us 265 man-hours – hope the C-130 checked out okay. It would be a total loss if it didn't.

munitions

OMS FLIGHT LIMITS

By Captain L. G. VanPelt
Test Pilot, Fighter Branch, ADTC
Eglin AFB, Florida

Ever wonder why you are restricted to 3 Gs and 400 knots when carrying a SUU – umpty ump? Or why a BLU-999 must be released at 350 knots or less but can be carried to 500 knots? The fighter pilot is expected to abide by the flight limits in the flight manual, but rarely is he given reasons for such limits. This article is intended to provide some of the background on external store flight limits, with the hope that such an understanding will improve the attack-fighter pilot's capabilities.

Munition manufacturer's design their products to withstand certain stresses. However, you may be surprised to know that some military design specifications are not very stringent. For instance, the suspension lug and hardback must meet specific requirements, but the case or munition body often does not. The airframe and suspension equipment (MERs, TERs, pylon racks, etc.) is more closely regulated and the load capabilities of such equipment are known precisely.

The flight limits for a particular external munition load on a particular station of a USAF aircraft is first analytically determined by the Compatibilities Engineering Branch at Eglin AFB, Florida. The item is then flight tested to the specified limits. The loads analysis, often referred to by the fighter pilot as an engineering WAG, is made to determine G limitations on the aircraft/store combination. The engineer first evaluates the aircraft station capability. The munition structural capability is then evaluated by studying the mass properties (CG location, moments of inertia, physical dimensions, etc.) and determining the theoretical loads applied during positive, negative, and rolling G maneuvers.

Using these analytical results and applying them with the tempered experience of the compatibility engineer, G load flight limits are proposed. Roll rate limits are also based on the loads analysis as rolling creates centrifugal loads on the aircraft/munition combination. The rolling G limit is based on the roll rate limit being maintained, unless otherwise stated. Incidentally, the unsymmetrical G limit (which is the same as rolling G) refers to an unsymmetrical maneuver, not an asymmetrical load. The aero engineers refer to a rolling pullout as an unsymmetrical maneuver. (The aircraft is rotating about more than one axis.)

The only specified safety factor provided in these G limits is a yield limit 1.15 times the actual flight limit. However, it must be pointed out, the stresses encountered by any one particular item are based on an average item with average mass properties. The mass properties vary considerably in many cases as no design specification exists governing mass property tolerances! (For example, the M-117 bomb with fuzes and tail fins is assumed to weigh 823 pounds, when actually it may vary considerably from that. Indeed, the center of gravity of this item has been found to vary $\pm$ 1.75 inches!) Static pull tests are often conducted to confirm load studies, especially where a suspicion of low G tolerance is suspected.

Once the loads analysis is completed and G limits are determined the compatibility engineer must determine airspeed limits. The airspeed limit analysis poses the most difficult engineering problem. Many varied factors affect this determination, and the most severe airspeed associated problem is flutter. When a flutter problem is suspected, wind tunnel studies are conducted and then flight tests by the airframe contractor with instrumented aircraft are conducted. The airspeed limit based on a

flutter problem is definitely worthy of respect, as no jock wants his pylon, store, or aircraft wing suddenly torn loose in flight. The speed restriction with partially filled external fuel tanks is often based on a flutter problem.

The aerodynamic loads placed on a munition at high airspeed are very difficult to determine accurately. The vibration characteristics caused by turbulent airflow around the item can only be roughly estimated, and experience (with a similar item) is the engineer's most useful tool.

These studies of aerodynamic problems result in a recommended limiting airspeed for carriage of the munition on the aircraft. Frequently, however, the using command has requested carriage of a munition at a specific speed. This speed will be the limiting airspeed if it is less than the maximum safe airspeed determined by the stress analysis.

The airspeed restrictions during release (or dispensing) of the item are then evaluated and are generally associated with concern for safe separation. Separation distances decrease when airspeed is increased, as the aerodynamic force (drag) of the item becomes larger and the vertical ejection force remains essentially constant. Munition models are constructed and wind tunnel studies are made when a separation problem is forecast. Unfinned items naturally pose the most severe separation problem as the item generally has no directional stability of its own – sort of like an unfinned arrow.

The munition center of gravity location is perhaps the most significant contribution to separation characteristics. If the CG is located forward of the midpoint between lugs, the item tends to be ejected in a nose up attitude (inertia). This attitude places the munition in a positive angle of attack which often results in a pitch up tendency. Obviously, this motion is not conducive to safe separation.

The mass, or inertia, of an item assists in safe separation and the size, or drag, degrades safe separation. Careful consideration of all these factors leads to a recommended maximum safe release airspeed. Again, if the using command has requested a specific release airspeed which is less, it will be adhered to.

Some items or configurations are deemed especially hazardous during separation (such as jettison of partially loaded MERs, munition and pylon together, some dispensers, etc.) and the engineers will not forecast safe separation at any speed. However, when the needs of the Air Force are overriding they will recommend a sir airspeed at which separation will probably be the le hazardous. In these cases flight test demonstrations are usually not conducted. It remains for the fighter jock (who is in a bind and must jettison his load) to establish this test point and demonstrate the validity of the engineer's WAG.

The first published flight limits (airspeed and G limits) are provided by the compatibility engineer and, as has been mentioned, are a result of stress analyses, wind tunnel tests, study of munition contribution to aircraft stability and control, and a large sprinkling of experience. However, as any test pilot will say, the careful prediagnosis made by the engineer is sometimes not exactly corroborated by in-flight results (Such as, "The bloody thing hit the slab when it came off!"). Consequently a flight test program must be conducted prior to weapon certification for carriage and release.

Evaluation of aircraft handling qualities is the primary objective during first flights of new weapon/aircraft combinations. Regardless of weapon type, be it similar to other munitions or completely different in appearance, the effect this store has on aircraft stability and control while attached to the aircraft must be evaluated before the weapon system is completely released for operational employment. This is accomplished at Eglin by flyin profile designed to allow the test pilot to qualitati evaluate the handling qualities throughout the entire proposed flight envelope.

Also during this initial "compatibility" flight the structural integrity of the aircraft-munition combination is demonstrated. The maximum positive, negative, and rolling G limits are attained as is the maximum airspeed and mach number. Incidentally, demonstrating the negative G limit is pretty sporting, especially after a meal of root beer and chili dogs! Limits beyond those recommended are not demonstrated, unlike our sister service (the one that crashes their airplanes onto large boats and calls the result a landing) who demonstrate up to airframe limit G load and 30 knots beyond the recommended limit airspeed!

Eglin presently requires two consecutive flights to verify aircraft/munition carriage compatibility. The munition is examined between flights but is not downloaded. The intent is to attain enough airborne time to simulate a combat radius plus fifty percent. As much of this time as possible is accrued at maximum limit speed where vibrational characteristics predominate – the kind of loads which cause fin separation, case cracking, arming wire withdrawal, etc.

Once a munition has passed its compatibility flight

the carriage limits are determined to be validated. ation flight tests are then begun. Initial drop tests onducted at the flight regime deemed most safe by the planning engineers in consultation with the test pilots (we are not about to make the first drop at high speed in a dive no matter how safe the engineer thinks it is). The first drop usually occurs at moderate speed in level flight and the airspeed and dive angle are increased in succeeding flights until the maximum recommended airspeed and dive angle are attained. Incidentally, many munitions never get by the first drop, having displayed a propensity for colliding with the aircraft during release! Eglin's sheetmetal men have a lot of experience in patching holes in aft sections!

Safety and photo chase is used on all separation tests. The safety chase makes an on-scene evaluation and the photographer, as well as on-board cameras, record the separation characteristics for ground study prior to release envelope expansion on succeeding flights. Again, the Navy demonstrates release at airspeeds and dive angles beyond the specified limits whereas the Air Force tests only to the limits proposed.

Aircraft control problems are often encountered during munition release. The sudden release of large items located forward of the aircraft center of gravity is a good example. The sudden reduction in gross weight coupled the shift in center of gravity result in what we like to 'instant G." This is especially critical during dive releases, for if the pilot does not expect this and adds his own aft stick input in order to initiate dive recovery, he may suddenly find himself with more G than necessary with the possibility of aircraft overstress.

Another control problem encountered during release results from items that change shape or configuration as they are ejected – such as high drag bombs. This can create an airflow disturbance at high airspeed that the slab may see with some rather spectacular pitch results. (We have had some good photo chase film of slabs bending upwards of 1 foot as a direct result of shock waves from M-117R bombs.)

Control problems or safe separation problems naturally lead to modifications of munition or flight limits. Once these problems, or lack of problems, are identified and the weapon certification flight tests are completed the paper work begins. Eglin forwards a data package and recommendations to Air Force Logistics Command which publishes the appropriate tech order change (Such as, Dash One Operations Supplement), which finally ends up in the pilot's hands.

When an aircraft/munition is incompatible, the alternatives are varied. If an unacceptable handling quality discovered, the approach taken is generally to place

restrictive flight limits on the aircraft. This shows up in the pilots' flight manuals – usually with no explanation! This reason alone behooves one to exercise extreme caution when contemplating flight beyond the specified limits. Under the right set of circumstances, such as CG location, angle of attack, turbulence, etc., exceeding the flight limits will have catastrophic results.

Occasionally, the control problem can be avoided by requiring a center of gravity scheduling in the form of fuel management procedures. The F-4 loaded with tactical fighter dispensers is a good example. The CG scheduling may also show itself to the pilot as a required ordnance release sequence.

The published flight limits naturally apply only to the configurations shown. An unacceptable problem encountered during the certification tests may result in simply not certifying that munition for carriage on a particular station. The absence of a particular configuration in the flight manual indicates the configuration has not been certified or was found to be unacceptable. Rarely will this lack of information be explained.

The foregoing discussion illustrates the complexity of flight limits determination and weapon certification. As you can see, there is much information left unsaid in the pilot's handbook, including a multitude of weapon/aircraft combinations which have not been certified. We at Eglin have seen what can happen when flight limits are expanded, and as a result, have a healthy respect for the published limits. If the flight limits are adhered to, the operational unit should have no difficulty in employing the munitions.

TAC TIPS ...interest items, mishaps

Airspeed Counts on the Ground Too!

After landing, the jock turned his F-105 off the active to a taxiway and opened the canopy. Heading toward the parking ramp, he thought the canopy appeared unusually high and asked mobile control to take a look. They confirmed his suspicions, advising him that it was opened about 90 degrees. Because the canopy was designed for a max opening of 55 degrees, the pilot figured he had problems. This was verified when the canopy fell closed as he slowed for the turn onto the parking ramp. The canopy had to be opened manually, and required 40 man-hours for repair.

The Thud pilot was sure he had not exceeded his max ground speed with canopy open. But he failed to consider the 14 to 18-knot winds from about 11 o'clock which, when combined with taxi speed, exceeded the relative airspeed limits of the canopy.

Prop Piston Problem

The Herky was on a max-pax run into an aluminum-plank strip 5500-feet long and 72-feet wide. "Men and equipment" closed the first-1000 feet. At five miles on GCA final the copilot called, "Runway in sight." With full flaps, the pilot touched down at the 2000-foot marker, lowered the nose, pulled throttles to ground idle, paused, and applied reverse thrust. As the props changed pitch, the Herky swerved violently, the left main gear rolling off the planking onto the asphalt shoulder. Reacting quickly, the pilot applied full right rudder, brought throttles out of reverse, and regained the wet planking. Over-correcting slightly, his right main rolled off the aluminum onto the asphalt. He regained directional control with left rudder and braking, but remaining stopping distance with 80 knots to kill with brakes only appeared insufficient. He decided to go around, applied max power, and called for 50-percent flaps.

After liftoff at 95 knots the bird yawed sharply, now nearly uncontrollable. A loud prop whine signalled: Runaway! The engineer called out 108 percent, torque 4000, and fuel flow 1000 on number four. Calling for emergency shutdown of Four, the copilot complied with the pilot's directive. With fire emergency control pulled and engine condition lever in feather, the prop failed to respond and increased in rpm instead. The feather override button didn't pop out; the copilot pulled it out. The crew reset the fire handle to restore oil and lubrication to the windmilling, high-drag prop.

Climbing very slowly in a yawed, right turn the pilot nursed airspeed and altitude to clear high terrain. Regaining aerodynamic control with increase in airspeed and copilot assistance on left rudder, the pilot decided to land on a wider hard-surface runway a short dista away. In the soup, his navigator provided steers aro terrain obstructions as they struggled upward from 300 to 3000 feet. GCA picked them up on a long straight-in final. The pilot eased back number one throttle to reduce his asymmetrical power problems and held 140 to 150 knots on final. At higher airspeeds number four's increasing prop whine suggested possible separation.

He flew Herky onto the runway at 140 knots and reversed inboards only, using brakes heavily. Tower reported sparks visible on the left side so he stopped on the runway, shut down, and off-loaded his passengers through the right paratroop door. Suspecting a left wheel well fire, the pilot set right brake only. Climbing out of the bird he saw four cherry-red brakes. He cleared the wheel-failure zone, had the nose wheels chocked, and returned to the cockpit to release brakes. After a cooling-off period, the emergency crew towed the Herky off the runway.

Investigators discovered an insidious failure during prop disassembly that may have been a factor in an earlier C-130 accident. They mounted Four's prop dome assembly on another prop and engine combination and ran it. The prop wouldn't increase or decrease blade angle. It wasn't pitch lock; the regulator checked out okay. During dome disassembly they found a crack on the top

with morals, for the TAC aircrewman

of the sliding piston. This allowed oil pressure on outboard and inboard sides of the piston to equalize by bleeding thru the cracked head. Without hydraulic pressure to control the prop blade angle, Centrifugal Twisting Moment took over and decreased blade angle to the low-pitch mechanical stop, causing the uncontrolled overspeed. Feathering attempts were also unsuccessful because increase pitch pressure couldn't build up on the piston.

A fleet-wide inspection of propeller dome pistons under tech order "843" is underway and will be completed shortly. Some suspected cracks were discovered in unmodified pistons in TAC's C-130s. The unmodified pistons will be re-inspected at intervals until reworked and new "B" configuration pistons are able for field retrofit. Procurement action is completed. In the meantime, keep current on Herky's prop procedures!

You Can Get It Anywhere

A flight of three A-37s departed a mountain base headed for the West Coast on an IFR clearance. Pitot heat and engine inlet heat were checked prior to takeoff. Fifteen minutes later the flight entered cirrus clouds with visibility about a quarter of a mile. There was no visible icing. A little later they entered thick clouds and encountered light turbulence. The flight lead requested a weather advisory from the center and was told that no precipitation was visible on their radar. They were at FL 240 and immediately after the radio call, entered an area of heavy rime icing. The leader got a clearance to climb and they headed for 350. At FL 290 while climbing, number two's left engine flamed out, outside temp was minus 43. Two then descended to FL 260 after unsuccessful attempts to airstart at 290. Five minutes later they all broke out of the soup and joined up.

It is suspected that ice build-up around the intake caused number two engine to quit. There was no icing forecast for their route . . . and didn't we all learn in school that ice doesn't form at a minus 43?

F-4 Flight Controls

On outside downwind for a touch-and-go, the aircraft yawed left one full ball width. Yaw aug was turned off, but it did no good. After a few minutes the situation seemed to correct itself so yaw aug was re-engaged and the pilot entered initial for an overhead. During the pitch unscheduled rudder inputs were felt again, so yaw aug was turned off. The situation seemed to be corrected, but the yaw inputs came back on final.

Uncommanded flight control inputs are becoming more and more suspect as possible loss-of-control accident cause factors. If you experience any flight control problems, the best course of action is to make a straight-in approach and let the maintenance troops trouble shoot the system on the ground.

Hq TAC (OSF)

"Fogged" Technique

After weather penetration for a night approach with radio out, the single seater began a circling approach according to local radio-out procedures. A few seconds later he crashed into the bay surrounding the airdrome, apparently still in control of his bird.

Board investigators suggested several possible causes, none of which could be confirmed because the plane was not recovered. But one probability deserves continued attention by all flyers, especially during night penetrations when distracting situations exist. If proper defrosting technique is not used prior to and during penetration, fogging inside the windscreen may deprive the pilot of forward visibility at a time of critical need.

when my number is what Will Be..

TRUST TO TOMORROW MAY BE A

National Safety Council

The most famous seven that America ever threw was a winner in an out-of-this-world gamble that held 180 million Americans spellbound. That winning seven was, of course, the seven astronauts of Project Mercury and their flights into outer space.

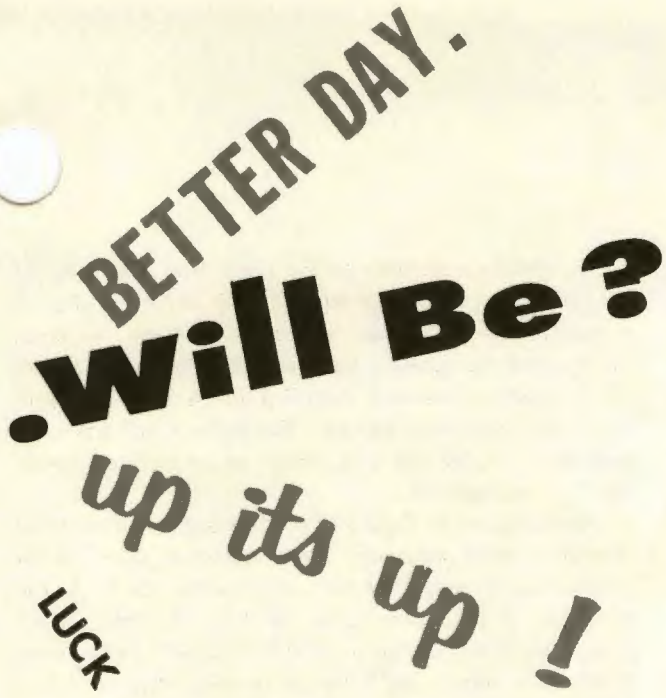
To many Americans, the seven men who made up America's first astronaut team seemed to be either supermen or reckless daredevils.

But, they were neither. They were professional pilots—men of the sky who chafed at the fetters of gravity and hungered to take the logical next step from aircraft to spacecraft. Backed by men of science and safety, they looked upward confidently to the last frontier.

Not supermen: "They are strong," explained Dr. William Douglas, their Air Force physician, "but they are not perfect physical specimens by any means. They have most of the normal human complaints."

Not daredevils: They not only had great courage but survival skills and abilities that qualified them for space flight.

The exhaustive screening tests they went through



showed additional basic characteristics. They all set realistic goals for themselves rather than to dream about the unattainable. They were all adventurous, but they could also accept the necessary routine of a job. They got along well with people; they were self-reliant; they could freely accept help and advice when it was necessary. None of them acted impulsively. They all had the habit of anticipating emergencies and planning for them.

Those were traits shared with millions of other Americans — the millions of men and women in American industry who have learned the knack of avoiding accidents. Make no mistake, the astronauts were pre-eminently men who sought to avoid accidents. "Safety was one of the main principles in the operation of Project Mercury," said Gordon Cooper, "and maximum safety can be attained only when you have planned and prepared for the most serious and unforeseen incidents. This is what we did."

The science of space flight is grounded in Newton's laws of gravity and motion. The work of Project Mercury, according to John Glenn, was grounded in an additional law called Murphy's Law: "Any part that can be installed wrong will be installed wrong at some point by someone."

Murphy's Law is repealed only by painstaking attention to detail. Incredible as it may seem, 1,250,000 tests were made before the first suborbital manned flight. "Test pilots — and astronauts — live by checklists," explained Scott Carpenter. "They have so many complicated things to do and remember that sometimes the little, obvious things do not get done simply because they are not written down in the proper sequence in the flight plan. It is a meticulous approach, and sometimes it verges on nit-picking. But it is a good way to stay alive and fly another day."

And the flight plan begins long before lift-off time, while everything is still very much on the ground. During the long countdown that precedes each flight, there is so much that could go wrong, Gordon Cooper explained, "that we put out a special manual to cover them all and to spell out the detailed procedures for each kind of crisis. It ran to about 80 pages."

Almost no detail of preparation was too small to be considered. Walter Shirra gave a revealing example of this in a remark about the fit of the space helmets. "We discovered that the entire rig fit best when we had about a five-day-old haircut. John Glenn refined this a bit and had his hair trimmed every three days before his flight."

This sort of scrupulous attention to detail is an example also of the astronauts' refusal to "trust to luck," or to give any support to the attitude of fatalism often expressed by, "When my number is up, I'll get it." They all know that they themselves — like all men doing a hazardous job — had a great deal to say about "when their number was up."

When Virgil Grissom was assigned to make the second suborbital flight, he became even more cautious than usual. "The only thing I was afraid of was that something might happen to prevent me from making the flight. So I gave up water skiing and I was more careful than usual to observe the speed limits around the Cape."

Interestingly enough, it was Grissom who ran into one of the safety rules at Cape Kennedy — an example of how seriously safety rules are enforced at the nation's space center. On the day the capsule he was to pilot was being mated to the Redstone booster that would drive it into space, Grissom was almost barred from the launching pad while the work was going on. "I had locked my hard hat in the office and forgotten the key, and no one is allowed near an active gantry without a special hard hat to protect his head. Someone finally loaned me one, and I made it just in time."

No one was surprised that the man who was to ride the rocket was barred from a work area because he had no hard hat. Project Mercury was a team effort. Every member of the team played by the rules, and "safety — particularly safety for the astronauts — was a paramount rule in Project Mercury," said Scott Carpenter. "Perhaps we astronauts were willing to take a few extra chances in order to get moving; that was the way we were built. But our bosses had their eyes on a bigger picture. They were not willing to let us take chances which they felt might jeopardize the mission or discredit the program. All of life, of course, is a compromise. And what we were doing was life at its fullest."

That is, after all, what safety means.

Pilot's Printable Poetry Page

An aviator's windfall in the form of a POW's World War II diary crossed the editor's desk the other day. It contained some classic examples of the inspired, brown-shoe-days poetry that sustained the lagging spirits of downed aircrewmen spending involuntary TDYs in Germany's scattered Stalags. The authors are unknown and we're unable to give them much-deserved credit for boosting morale.

Perhaps some of TAC ATTACK's readers will recall the poet-pilot who authored these nostalgic notes. After you've wiped away that tear, send us his name. And in addition, if you have some not-too-boisterous ballads you've collected during your Air Corps/Air Force tours, send them along. We'll try illustrating them in future issues on our Pilot's Printable Poetry Page.

B-17

You can talk of your airplanes and talk of them long
Discuss all their points both the weak and the strong
You can argue with passion or calmly assess
Demerits and merits each plane may possess
Pile figures on facts and statistics relate
Or a personal preference impressively state
But when it's all over 'tis plain to be seen
There's none that quite touches the B-17.

First of the four-motored bombers she came
First to the stratosphere, first to the fame
Of bombing by daylight in enemy skies
And first to invite the Luftwaffee to rise
She made the long hauls at whatever the cost
Oh many came back and many were lost
Formations were lashed by the fighters and flak
And battles took place that were bloody and black.

But thru them she rode triumphantly strong
To deliver the goods where we know they belong
So thanks to the escort for helping us thru
And thanks to the B-24's gallant and true
A toast to them all let every man raise
And this to the fortress deserving our praise
She's a symbol of all that freedom can mean
When angered to fight — the B-17.

Man can survive under water, at most, for a little more than a minute. If this sobering fact had been considered by several TAC personnel in 1969, it's doubtful that there would be reason to recall how they met death.

As a landlubber, man has done reasonably well adjusting to his earthy environment. And, it's not uncommon for the common man to fly through the sky with the ease of driving to the corner drug store. Wherever he goes, on the ground or in flight, as long as he avoids serious bodily injury, he can usually count on continued long life.

But if he ventures only a few feet from the shoreline, he need not be bodily battered to meet his end quickly. Take away his access to air and it's all over. Giving the TAC personnel in question benefit of the doubt, perhaps their intention was to always remain in an environment of life-giving oxygen, with little thought to the possibility of being forced below the water's surface. Whatever their thoughts, it all boils down to one serious fact. Once on the water's surface, they were situated where the difference between life and death was one little minute. As a result, time to ward off disaster became mighty short.

Several drownings in TAC happened as unexpectedly, but with similar circumstances, as the following accident.

Summer temperatures were hot. The victim and three friends decided to spend a free afternoon swimming. All could swim, but none were judged to be good swimmers. They went to a National Park lake away from congested swimming areas. The inlet they chose was about 300 yards long, 35 yards wide, with a shoreline ranging from six-feet deep water only ten feet from shore on one side, to a 25-foot sheer dropoff on the opposite side . . . and no life guards.

For the first hour and a half, it was all fun and good times, swimming on the sloping side of the shore. Then the TAC man and a companion headed for the opposite shore. Ten feet from their goal, the airman yelled that he could go no farther. His friend grabbed hold of him to pull him ashore. The struggling airman panicked and submerged, dragging his friend with him. Breaking loose, the friend made it to the surface and saved himself. Park rangers recovered the airman's body two hours later from 24 feet of water.

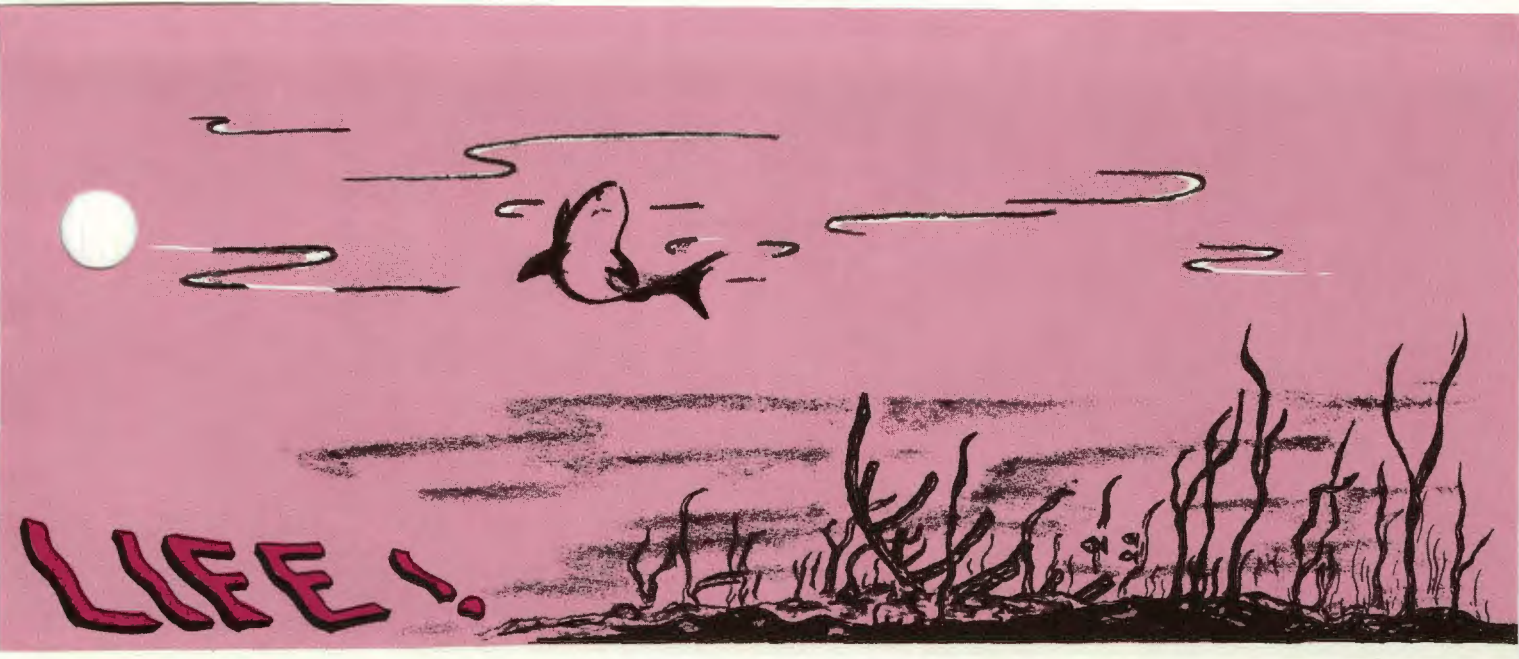
Less than two months later, another TAC man was pulled from the same water by the same park rangers after attempting a similar cross-channel swim. In this case, the victim was considered to be a good swimmer.

During the year, three more TAC men drowned during recreational swimming. Two had consumed considerable beer before swimming, and another was pulled from five feet of water where he lay after tiring and being overcome by sheer panic.

These deaths are tragic, but the greatest tragedy is that they are repeats of previous drownings . . . and prophesy more for this year. And to suggest that those TAC personnel who will be dead by this time next year actually anticipate drowning is ridiculous. But the truth is, if they will consider the possibility of drowning and anticipate their defense, they will still be around for 1971.

A sure solution is "Don't go near the water." But, that's like being a fighter pilot told to fly straight and level and not to venture above ten thou. It just isn't practical. But find an old fighter pilot and you've met the guy who not only anticipated problems but knows how to handle them before they sink into the "deep-six" position. If a swimmer is similarily prepared, his chances of becoming an old swimmer are greatly improved.

For instance: the last-ditch action a pilot has to avoid an uncontrolled landing is to eject. If a swimmer is



faced with inability to move another stroke, what is his last ditch action to keep his nose an inch above water, instead of letting it fall the fatal inch below? One way is to float! It requires little energy (see TAC ATTACK, June 1968), and an almost completely handicapped (physically) person can do it for hours. But unfortunately, it also calls for considerable self-control to ward off fear and panic; the bogey that gets most drowning victims. In words, if a swimmer disciplines himself to respond vely to emergency situations, his chance of submitting to panic is much less.

Another experienced TAC swimmer and a friend we'll call Al died during a routine scuba diving excursion. The TAC man was an experienced diver with good equipment and held numerous swimming and water safety awards. Although Al had less diving experience, he owned a good set of gear. However, two items not used by either diver were tank gauges showing air pressure remaining, and an extra regulator for emergency buddy breathing. The latter would have probably saved both lives.

The two intended exploring an underwater cave. Nearing the cave at about 100-foot depth, Al suddenly indicated he was out of air. Investigators believe they attempted to buddy breath during ascent by sharing the TAC airman's system. Panic must have followed! Both men's bodies were marked with scratches and bruises about the head.

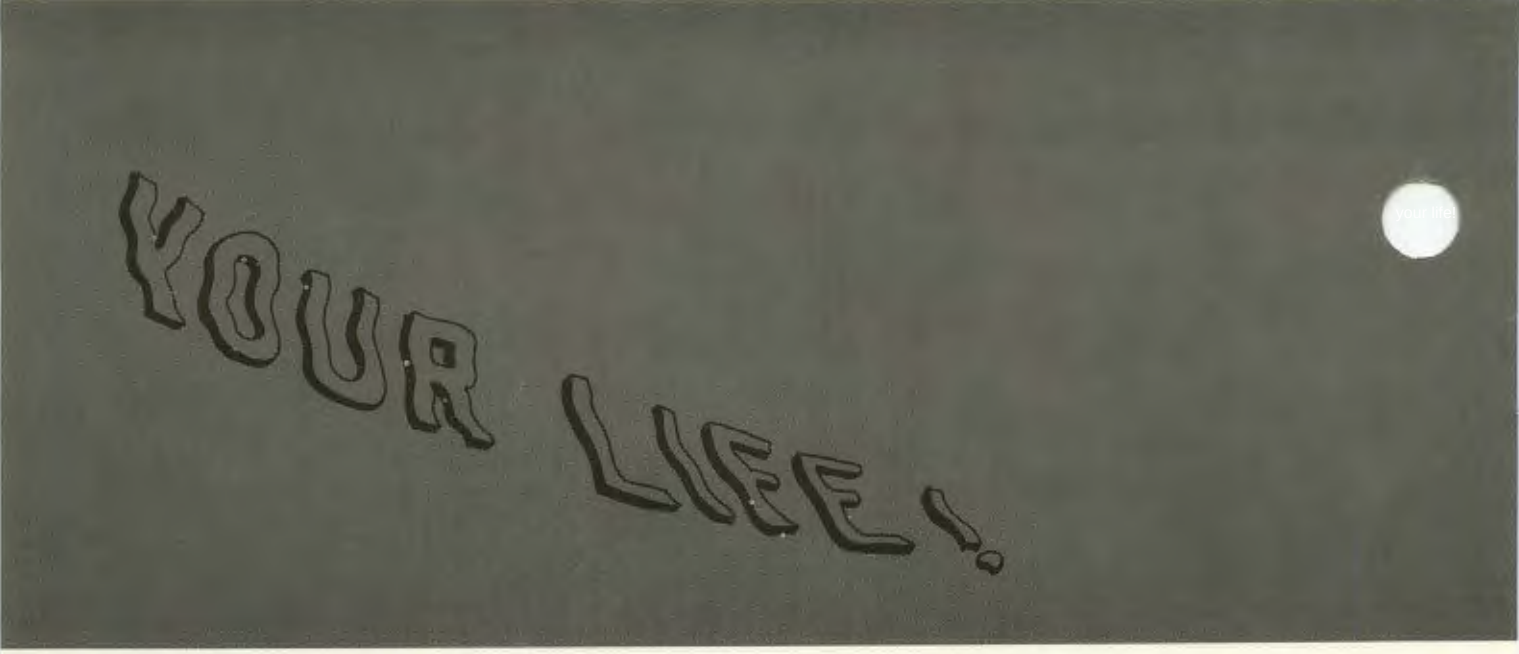
Apparently the men did not cross-check each other's equipment before entering the water. If they did, both overlooked a closed valve on one of Al's two tanks. When found, the one tank contained a full supply of air.

Some fair conclusions are: had the valve been opened, the accident would not have happened; had an adequate pre-diving check been conducted on both systems, the would have been noticed; and, had panic not occurred, both men could have made it to the surface. In other words, the men were not ready to enter an unforgiving environment in either terms of equipment or emotional stability. In short, they were not prepared.

Recreational boating cost three TAC men their lives in 1969. In one accident, seven airmen were involved. On their day off they rented four boats, each equipped with an outboard motor. Several of the men had been drinking beer, and beer and coolers were found in two boats when later checked by investigators. A life jacket had been issued to each boat operator and passenger before leaving the dock. After each boat went separate ways for a while, they all converged, running a racetrack pattern, eventually "horseplaying" by zig-zagging across each other's wakes, making sharp and reckless turns close to each other.

Now anyone with average boating experience knows that crossing another boat's wake at high speed can be a tooth-jarring ride. And if done at some intersection angles, it means loss of control and probably a flip. They found out. One man, we'll call him Dave, was thrown from his boat. Helped back aboard, Dave took the helm and again joined the melee. He was in a tight turn when another boat cut short across his wake, slipped sideways in midair, and landed on a collision course so close it couldn't be avoided. The boat rammed Dave's boat broadside near the stern! Charging over the gunwale, the bow struck Dave, threw him into the water, probably unconscious. Only one of the seven men was wearing a life jacket, and it wasn't Dave. His body floated to the surface several days later.

Operating a boat calls for good decision making, a lot more than simply "no horseplay." For the first time in his military life, another TAC man was assigned to a base near the open sea. The mid-westerner had the usual experience



that goes with boating and fishing on inland lakes. But this was his first chance to become a bona-fide salt water Captain; a title he learned too late, carried considerable responsibility.

With his teen-age son, he and another TAC pilot planned a coastal fishing trip aboard his newly acquired 24-foot cruiser. After work, they headed a couple miles off shore where the Captain and his son had hooked a whopper the previous day. At their destination, they began their trolling course parallel with the shoreline and the waves of the moderately heavy rolling sea marked with whitecaps, as an occasional wave turned breaker. The boat, adequately constructed for the waters, rode easily over the crests and troughs of the flowing sea.

Completely unexpected and without warning, an approaching wave crested. Estimated by the teenager as about ten-feet high, it broke over the starboard beam, washing the boy overboard. Water had filled the cockpit almost to the gunwales as the men pulled the boy back aboard. They made a fast search for life vests (six were aboard) stored away in lockers. Two were found before the boat was awash; so the third member grabbed several buoyant cushions as the boat settled below the surface, less than two minutes after the breaker fell. A survival kit, including a variety of flares, stored in a forward cabin compartment went down with the craft.

Water temperature was in the high 40s, offering an optimistic four hours survival time without anti-exposure suits. About two hours of daylight remained . . . no one ashore knew their exact location, and they had no signal devices.

The Captain lapsed into unconsciousness about four hours later and died. Soon after, the remaining adult became quiet and floated away in the darkness. The boy, fortunately a husky and healthy teen-ager, remembered nothing after that until early morning when he awoke with the sun full in his face. Minutes later, a commercial fishing boat came alongside and pulled he and his dead father from the sea. Floating a few hundred feet away was the body of the other man.

The Captain's mistakes were many; and accepting responsibility for the safety of his son and another in an almost foreign environment, without experience or training, was pure naivete. Seamanship training was readily available in basic and advanced courses at a local United States Power Squadron. A local fisherman reported that he advised the Captain only days before, when he inquired about this particular fishing area, that it hazardous because shifting shoals made bre unpredictable; enough so that most commercial fishermen entered the waters cautiously, if at all. Nor would an experienced Captain set a course parallel to the potential breakers, exposing his beam to possible swamping as in this case. Or even worse, sudden capsizing.

Emergency gear is of little value if neatly stowed and out of reach when an emergency arises. On this point, the Coast Guard requires public boats to keep buoyant survival gear in view and within easy reach, including several that will float free if suddenly swamped. Signal flares are also required to be within easy reach of the Captain, at or near his station.

Neither of these men would ever suggest that a novice pilot, with flying experience limited to something like the T-41 environment, would have a chance for survival if he launched in a modern fighter without adequate knowledge and training. But the Captain's excursion to sea was about that. And he was not prepared.

Water recreation, like gambling is here to stay. There's no doubt about that. So have fun and take your chances, you may never lose. But the least you can do is hedge your bet. With appropriate knowledge, attitude, and caution, your odds for continued fun on water are taken from the hands of bookies. Wagering a few dollars is one thing . . . but your life!? →

Tactical Air Command
Crew Chief of the Month

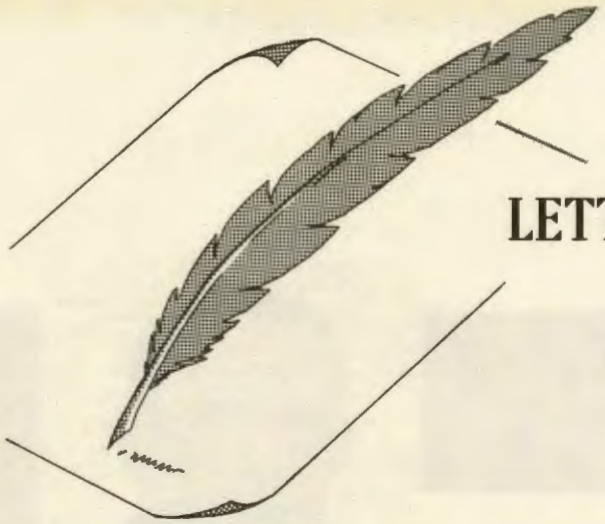
SSgt Kappmeyer

Staff Sergeant John R. Kappmeyer, 481 Tactical Fighter Squadron, Cannon Air Force Base, New Mexico, has been selected to receive the TAC Crew Chief Safety Award. Sergeant Kappmeyer will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

Tactical Air Command
Maintenance Man of the Month

SMSgt Plummer

Senior Master Sergeant Carroll D. Plummer, 15 Tactical Fighter Wing, MacDill Air Force Base, Florida, has been selected to receive the TAC Maintenance Man Safety Award. Sergeant Plummer will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.



LETTERS to the EDITOR

Let me extend my congratulations on the very effective photo presentation on rate of closure in your recent issue of TAC ATTACK.

We at the Air Line Pilots Association would be most interested in getting copies of these photos, and any others on the same subject, and your permission to use them in an upcoming issue of AIR LINE PILOT.

Lou Davis, Executive Editor
AIR LINE PILOT

Permission to reprint is granted with pleasure. The photos are on the way. Unfortunately, the set you saw in the March TAC ATTACK are the only ones we are aware of. Ed.

I read an article in the February 1970 issue of FAA AVIATION NEWS in which there was an article on the effect of wind chill. This article referred to some graphs and information contained in the November 1969 issue of TAC ATTACK.

I am doing some research on the effects of wind chill and exposure to severe weather. Therefore, I would like to obtain a copy of the November 1968 issue of TAC ATTACK plus any additional information you can give me on this subject.

If there is a charge for this magazine or any of the literature you have, please notify me prior to sending them to me.

I will certainly appreciate any help you can give me.

W. P. McKay
8819 Belleview
Kansas City, Mo.

The November 1968 issue of TAC ATTACK is on the way. We're happy to help your research effort on wind chill. It's a subject near and dear to our hearts when the cold breezes come. Ed.

The GUNFIGHTERS of the 366th TFW having their FIRST PRACTICE REUNION for all OFFICER members in Tampa, Florida, 19 – 21 June 1970. All members, past and present, are requested to write for details and submit their address to: GUNFIGHTERS, Box 6586, MacDill AFB, Florida 33608. Detailed information will be forthcoming to make this first stag reunion an enormous success.

Major William J. Launikitis
46th TFS, MacDill AFB, Florida

PEANUTS

TAC TALLY

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1969	1970	1969	1970	1969	1970
JAN	6.8	4.8	28.9	5.9	0	0
FEB	6.2	3.9	12.8	2.6	0	0
MAR*	6.8	4.7	12.6	1.7	0	0
APR	7.4		15.1		0	
MAY	7.5		12.9		0	
JUN	7.2		12.6		0	
JUL	7.4		11.3		0	
AUG	7.3		11.5		0	
SEP	6.9		10.5		0	
	7.1		9.9		0	
NOV	6.6		9.4		0	
DEC	6.8		9.5		0	

AIRCRAFT ACCIDENT RATES

* Estimated

UNITS

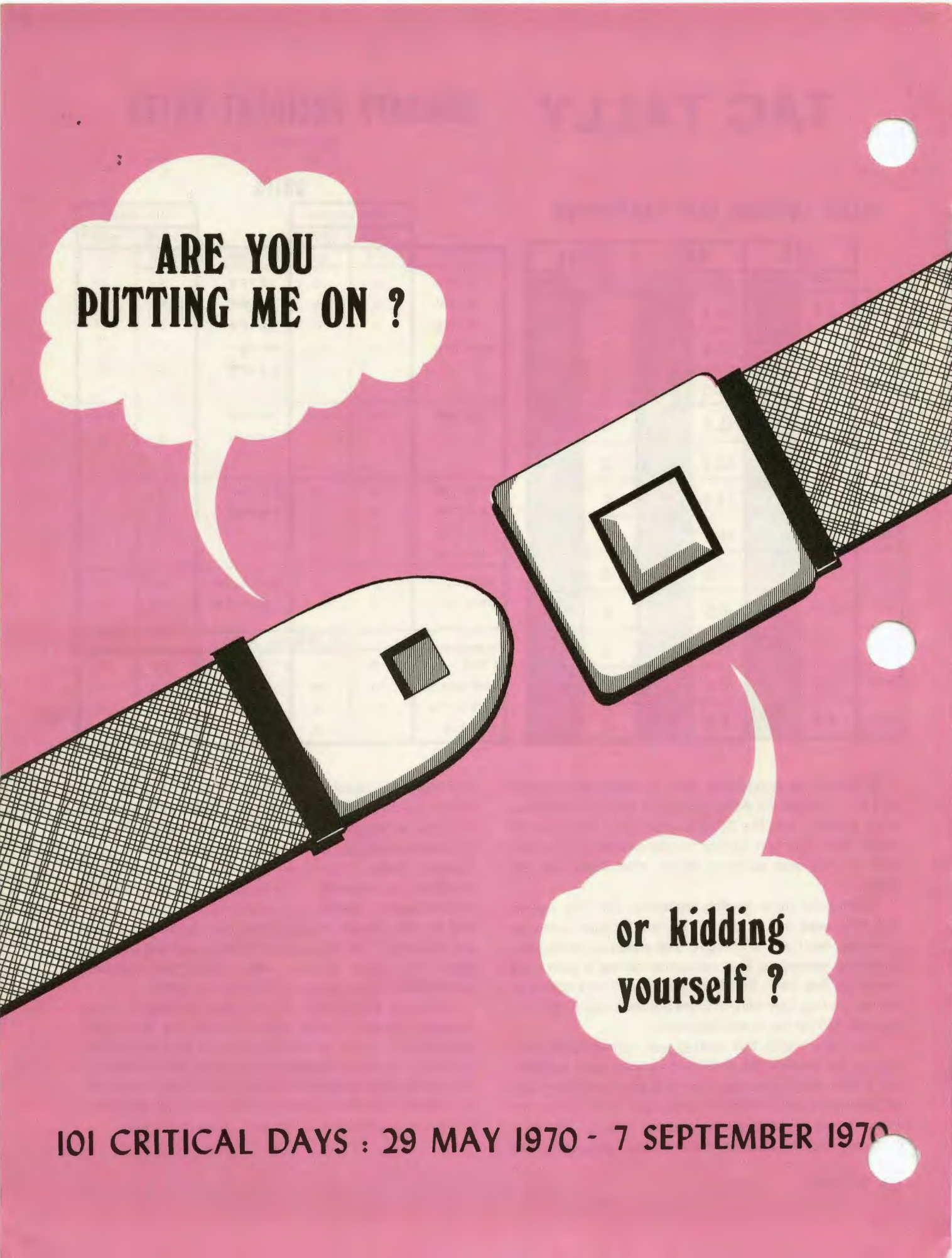
	THRU MARCH			THRU MARCH	
	1969	1970 *		1969	1970 *
9 AF	1.2	2.9	12 AF	7.6	6.0
4 TFW	0	0	23 TFW	0	0
15 TFW	0	0	27 TFW	0	0
33 TFW	0	0	49 TFW	0	20.8
4531 TFW	0	14.7	479 TFW	8.1	9.1
			474 TFW	29.8	0
363 TRW	11.8	12.4	67 TRW	0	14.1
			75 TRW	0	0
64 TAW	0	0	313 TAW	0	0
316 TAW	0	0	516 TAW	0	0
317 TAW	0	0			
464 TAW	0	0			
4442 CCTW	0	0	4453 CCTW	0	0
4554 CCTW	0	0	58 TFTW	19.3	12.2
TAC SPECIAL UNITS					
1 SOW	0	11.1	2 ADG	0	0
4409 SUP SQ	0	0	4500 ABW	15.7	0
4410 CCTW	26.2	0	57 FWW	18.9	0
4416 TSQ	0	0			

In March we experienced four accidents, all occurred in TAC. TAC-gained ANG units have been accident free since January, and the AFRES units since December of 1968. There was one fatality for the month bringing our total for the year to seven. Better than 1969, but not much.

There were three landing accidents. The first was an A-1 that went out of control on landing and ended up sans gear. Next was a TF-104G that ended up on its belly following premature gear retraction during a go-around (more on this one). The third was an O-2 that stalled in during landing. Our only in-flight accident was an RF-101 that pitched up for reasons unknown.

Hey, what's with this landing gear retraction bit while still on the ground? We thought that trick went out with the F-86F many years ago. Our files show one other case of premature gear retraction along with a recommended solution that could have prevented our bash this month, it ...rred back in June of 1969. At that time the world (we mean that literally) was notified that the F-104G gear handle blocking solenoid is controlled by a switch on the nose gear scissors and it is possible to raise the gear handle prematurely during a go-around. Then to top these off, we recently heard of a minor accident that occurred in another command. Different airplane, same circumstances – during a go-around from a no-flap touch and go, the student retracted the gear before advancing the throttles. The IP valiantly tried to salvage what he could, but there was no way back; they egressed successfully following a two thousand foot slide.

Looks as though you IPs are going to have to start chaining the gear handle down on base leg. The other alternative is to get at the root of this problem, which incidently, is not the location of the squat switch entirely. Moving the gear handle up while on the runway cannot be an original idea for a student, someone had to teach him to do it or put the idea in his head. Think about that.



101 CRITICAL DAYS : 29 MAY 1970 - 7 SEPTEMBER 1970