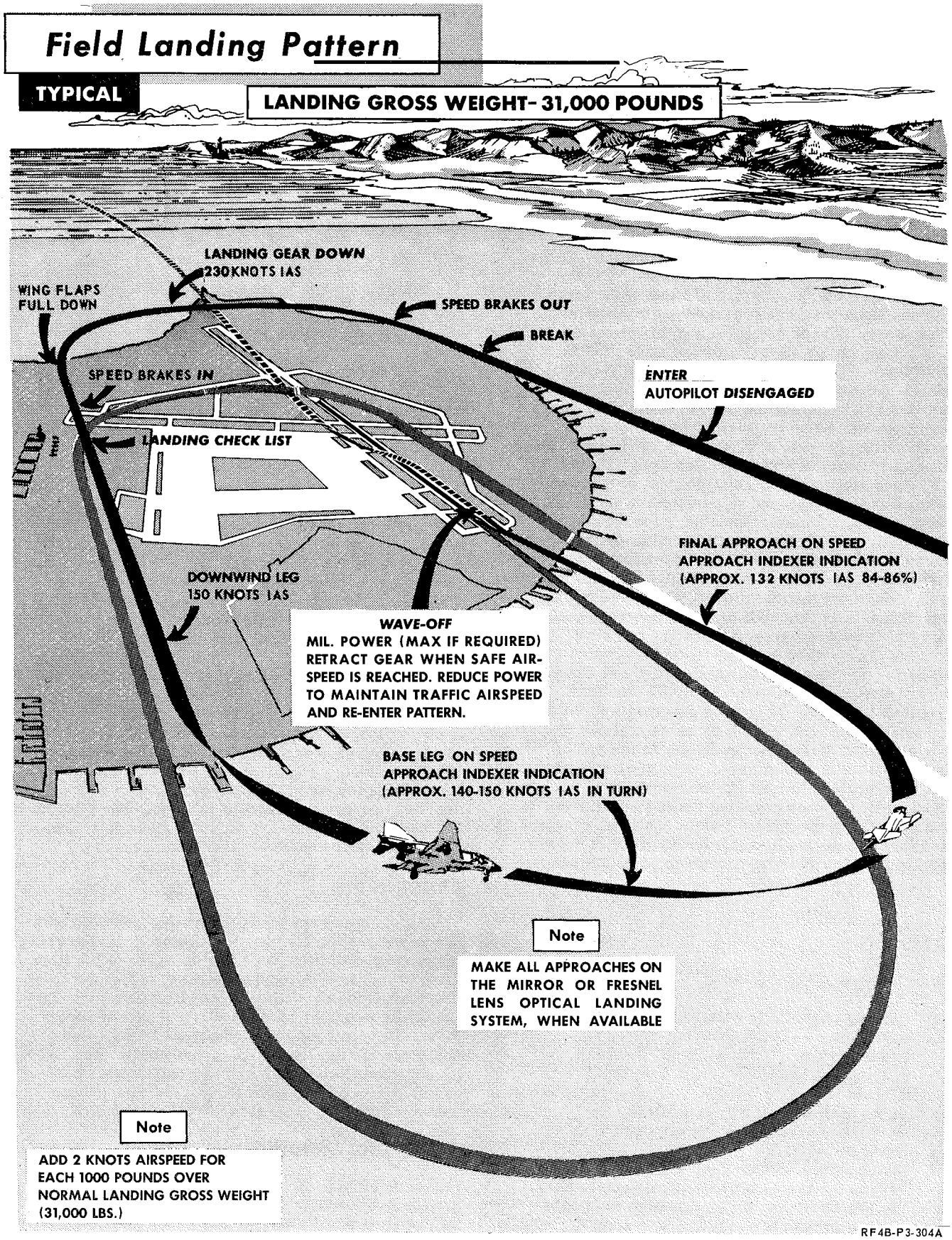
Field Landing Pattern
TYPICAL
LANDING GROSS WEIGHT- 31,000 POUNDS
LANDING GEAR DOWN
230 KNOTS IAS
WING FLAPS
FULL DOWN
SPEED BRAKES OUT
BREAK
SPEED BRAKES IN
ENTER
AUTOPILOT DISENGAGED
LANDING CHECK LIST
FINAL APPROACH ON SPEED
APPROACH INDEXER INDICATION
(APPROX. 132 KNOTS IAS 84-86%)
DOWNWIND LEG
150 KNOTS IAS
WAVE-OFF
MIL. POWER (MAX IF REQUIRED)
RETRACT GEAR WHEN SAFE AIR-
SPEED IS REACHED. REDUCE POWER
TO MAINTAIN TRAFFIC AIRSPEED
AND RE-ENTER PATTERN.
BASE LEG ON SPEED
APPROACH INDEXER INDICATION
(APPROX. 140-150 KNOTS IAS IN TURN)
Note
MAKE ALL APPROACHES ON
THE MIRROR OR FRESNEL
LENS OPTICAL LANDING
SYSTEM, WHEN AVAILABLE
Note
ADD 2 KNOTS AIRSPEED FOR
EACH 1000 POUNDS OVER
NORMAL LANDING GROSS WEIGHT
(31,000 LBS.)
RF4B-P3-304A

Figure 3-4

LANDING TECHNIQUE

For a normal field landing with a gross weight of approximately 31,000 pounds, fly the pattern as illustrated in figure 3-4. Enter the pattern as local course rules dictate, utilizing the throttles and speed brakes, as necessary, to maintain pattern altitude and airspeed. At the break, reduce thrust and extend the speed brakes (if required). As the airspeed decreases through 250 knots IAS, lower the landing gear and extend the wing flaps. Retract the speed brakes to decrease buffet, however, some buffet and noise will come from the nose wheel well as the landing gear extends. This noise and buffet will disappear as approach speeds are reached. Continue to decelerate to, and maintain, 150 knots IAS. After the gear and flaps have been checked and reported, roll into the base leg and establish a mild rate of descent, maintaining an "on speed" angle of attack indexer light (140 to 150 knots IAS). Use the angle-of-attack indexer and maintain the "on speed" indication except that 125 knots will be the minimum final approach speed. When on final approach, utilize a power setting of 84 to 86% rpm. This will provide an "on speed" angle of attack indexer light with a 2 1/2° to 3° glide slope and a rate of descent of approximately 700 fpm. Attempt to land within the first 1000 feet of runway whenever possible, however, do not chop power prior to crossing the end of the runway. The sudden loss of boundary layer control air will cause the airplane to settle immediately. At touchdown, retard the throttles to IDLE and deploy the drag chute. The nose will drop almost immediately due to the airplane center-of-gravity and stabilator location. When the nose gear is on the runway, hold full back stick to increase drag, and utilize the rudder and wheel brakes, as necessary to maintain directional control. Nose gear steering will not be engaged upon landing except as an emergency method of maintaining directional control. At the end of the landing roll, and at taxi speed, nose gear steering should be utilized to turn off the runway, and for low speed taxiing. When engaging the nose gear steering, be sure to have the rudder pedals centered, otherwise the nose gear will immediately cock in the direction and in proportion to rudder pedal displacement.

LANDING

PILOT

1. Landing checklist - COMPLETE
   a. Wheels
   b. Flaps
   c. Harness
   d. Hook
2. Upon touchdown, throttles - IDLE
3. Drag chute - DEPLOY (as required)
4. Brakes - APPLY
5. Temperature control knob - FULL HOT
   Place the temperature control knob to HOT to evaporate any water that may have collected in the air conditioning system during descent.
6. Drag chute - RELEASE IN DESIGNATED AREA

WARNING

Do not turn on pressure suit vent air knob in excess of 1/4 turn when BLC is operating. When the flaps are raised, the additional engine bleed air to the air conditioning and pressurization system can cause the pressure suit to "balloon". If the pressure suit controller should malfunction, the increased suit pressure could become high enough to cause immobilization.

RSO

1. Pilot's checklist - MONITOR
2. Harness - LOCKED
3. Report - READY FOR LANDING

DRAG CHUTE PROCEDURES

The drag chute will normally be employed on all landings except for specified no-drag chute landings during the familiarization phase, or landings made with a known crosswind component equal to or greater than 20 knots. All landings should be planned and flown as no-drag chute landings. In case of drag chute non-deployment, a waveoff shall be initiated if conditions are not ideal to stop the aircraft. If a waveoff is initiated the drag chute handle should be stowed immediately to preclude inadvertent chute deployment/jettison in the landing pattern. If committed for a no-drag chute landing, the pilot must be prepared to drop the hook and engage the arresting gear if there is any possibility that speed or runway condition will preclude stopping the aircraft on the runway. Caution must be exercised while taxiing with the drag chute deployed to insure that the drag chute does not become entangled in the taxi lights, other aircraft, or other obstructions. The drag chute will be released on signal from the taxi-signalman in an area where the possibility of interference with other aircraft turning up or taxiing is least. The pilot must advise tower personnel if the drag chute is released elsewhere on the field.

LANDING ROLL

The airplane is very clean on landing and even with fairly low residual thrust it will want to roll down the runway with little deceleration. Leave the flaps down to increase aerodynamic drag, and to decrease residual thrust by utilizing BLC air. Exercise caution while using the brakes until you get the feel of them. They are fully powered rather than boosted and there is very little feel at the pedals. The tire pressures are very high and they will break loose and skid with heavy applications. Refer to Brake System, Section I, Part II for braking technique.

CROSSWIND LANDING

Carefully compensate for crosswinds in the traffic pattern to guard against undershooting or overshooting the final turn. On final approach, use wing low or crab method to maintain course. Maintain normal approach speed aligning airplane with the runway.

NEW NEW NEW NEW

The pilot should be prepared for aircraft weathercocking into the wind upon drag chute deployment. Weathercocking must be corrected by rudder and spoiler control, until the rudder and spoilers are no longer effective. Nose gear steering and brakes will then be the only methods available for directional control. Before engaging nose gear steering, the pilot must insure that the rudders are centered to preclude a hard-over signal to the nose gear in direction of rudder displacement. When landing on a wet runway with a crosswind component in excess of 20 knots, it may become necessary to jettison the drag chute after initial deceleration to maintain directional control.

HEAVY GROSS WEIGHT LANDING

As landing gross weight increases, the landing pattern should be expanded and approach and touchdown speeds should be increased accordingly. Follow procedures outlined in Landing Pattern Diagram, figure 3-4. To maintain an "on speed" approach indexer indication, the airspeed is increased approximately 2 knots for each 1000 pounds over normal landing gross weight.

WET RUNWAY LANDING

If possible a wet runway landing should be made at a normal landing gross weight of 31,000 pounds (approximately 2,000 pounds of fuel remaining). Fly a normal approach with an "on speed" or "slightly slow" indexer indication. Plan to touchdown on centerline with a maximum amount of runway remaining for deceleration. The drag chute should be deployed on touchdown and the flaps should be left in the down position in order to bleed off residual engine thrust by utilizing the BLC system. Light braking can be initiated at 100 knots IAS providing a smooth easy application is used. It should be remembered that nose gear steering is available should directional control become a problem. Be prepared to engage the arresting gear if the aircraft is not slowing down properly. The arresting gear should be engaged with feet off the brakes, flaps full down, and control stick full aft.

SECTION LANDING

The leader should transition to optimum approach speed when the runway is sighted, touching down 500-1000 feet down the runway on his side. The wingman should avoid getting "sucked" and maintain a normal wing position except that as he approaches the runway, he moves out to give additional wingtip clearances at touchdown. The wingman will call "Good Chute" or "No Chute" as the case may be.

MOREST LANDING

The techniques for engaging MOREST are essentially the same as for other types of arresting equipment as are as follows:

1. Notify control tower as soon as possible, of intention of engaging MOREST, and transmit estimated gross weight for touchdown.
2. At the 180° position, receive clearance for a MOREST landing.
3. Approach on mirror.
4. Touchdown on centerline of runway and deploy drag chute as required.
5. Lower arresting hook 1,000 feet in front of MOREST gear.
6. Engage wire with feet off the brakes, stick aft.

WARNING

Maximum engagement for M-1 MOREST gear is 103 knots IAS for gross weights under 33,000 pounds. Consult current BuWeps Aircraft Recovery Bulletins if other type MOREST gear is to be utilized.

WAVEOFF

The descision to take a waveoff should be made as early as possible. Advance the throttles to MIL or MAX as required to stop the sink rate. The landing gear should be raised only after the sink rate has been stopped and there is no possibility of the airplane contacting the ground. A a safe airspeed and altitude, raise the flaps.

POSTFLIGHT PROCEDURES

Prior to engine shutdown, it is recommended (but not required) that the engines be operated at IDLE power for 3 to 5 minutes in order to allow engine temperatures to stabilize. Landing roll and taxi time may be included. Carrier landings may require that the engines be shut down almost immediately after touchdown from high power settings. If the engines are shutdown prior to the recommended idle time, a notation should be made on the yellow sheet. To shut down an engine, move the throttle to OFF, the engine master switch to OFF and the generator control switch to OFF. With only one engine operating, do not move the control stick excessively. Excessive stick movement with hydraulic pressure on only one side of the tandem power control cylinders will cause the hydraulic fluid that is in the unpressurized side of the cylinder to be forced back through the pressure lines to the reservoir, filling the reservoir, and causing the excess fluid to be dumped overboard. The seals within the power cylinders may also be damaged by air ingestion and lack of lubrication. If the above situation occurs, the power control hydraulic systems must be reserviced and checked. Perform the postflight checks as listed in the NATOPS Pocket Checklist, with the exception that during operations where the temperature is below freezing or expected to drop below freezing, the aircraft may be parked with wings spread and flaps in the full down position.

POST LANDING

PILOT

1. Flaps - RETRACT (when clear of landing runway)
2. Radar altimeter - OFF

3. Alternate ejection handle guard - UP.
4. Stab aug - OFF
5. Temperature control knob - 12 O'CLOCK POSITION
6. Station 1 camera mount selector knob - OBLIQUE
7. Station 2 camera mount selector knob - LOAD

Note

Prior to engine shutdown, ascertain from RSO that INS checks are complete.

RSO

1. Alternate ejection handle guard - UP
2. FLR mode switch - OFF
3. CNI - STBY
4. Inertial navigation power control knob - ALIGN
   If heading memory alignment is desired for the next flight, the power control knob should be left in the ALIGN position until the "ALIGN" light is flashing.
5. Inertial navigation align mode switch - HDG MEM
6. Inertial navigation power control knob - OFF
7. Navigation computer function selector knob - OFF

SHUTDOWN

PILOT

1. Throttles - OFF
2. Engine master switches - OFF
3. Generator control switches - OFF
4. Seat pins - INSTALLED
5. All switches, levers and personal equipment - OFF or DISCONNECTED

RSO

1. Seat pins - INSTALLED
2. All switches, levers, and personal equipment - OFF or DISCONNECTED.

NIGHT FLYING

EXTERNAL LIGHT MANAGEMENT

During night operations, the external lights should be set as follows:

1. On the line - BRIGHT and STEADY.
2. When ready for taxiing - BRIGHT and FLASH
3. In flight
   a. Single aircraft - BRIGHT and FLASH (or as weather conditions dictate)
   b. Formations - AS REQUESTED BY WINGMAN
      The last aircraft in formation flight should have his external lights on BRIGHT and FLASH unless tactical situation demands otherwise (actual penetrations etc.)

TAXIING

Night operation demands extra caution while taxiing. It is difficult to judge actual ground speed at night. Pilots can best judge their speed by frequently observing the runway or taxiway close to their aircraft as illuminated by the bottom fuselage light. Taxi slowly for it is possible that unlighted aircraft, vehicles, and/or obstructions are on the taxiways.

TAKEOFF

A night takeoff is accomplished in exactly the same manner as one outlined for daylight operations with the following additions:

Be prepared to transition to complete instrument flight immediately upon leaving the runway.

INFLIGHT PROCEDURES

See Section IV of this publication.

LANDING

Night landing procedures are identical to day procedures with the following exceptions:

There is often a tendency to be fast. Be positive about checking angle of attack and airspeed. Determination of altitude and sink rate are difficult at night. This necessitates reference to the vertical velocity indicator. Rates of descent up to 750 feet per minute are acceptable, use mirror when available.

FIELD MIRROR LANDING PRACTICE

PREFLIGHT INSPECTION

A normal preflight inspection will be conducted with specific attention being given to tire condition, nose strut extension, angle of attack probe conditions, and windshield cleanliness. Check that the hook bypass switch is in the BYPASS position.

TAKEOFF

The takeoff will be individual using either MIL or MAX power depending on fuel weight, mission, etc.

RADIO PROCEDURES AND PATTERN ENTRY

It is advisable to call Paddles prior to pattern entry to confirm Charlie Time. Approaches to the field for break will be controlled by the tower and then switched to Paddle for FMLP pattern control. At no time will an aircraft remain in the pattern without a UHF receiver. On each succeeding pass, the following voice report will be made at normal meatball acquisition positions:

NEW

Side Number
Meatball or Clara (no meatball)
Type aircraft
Fuel state (nearest 100 lbs.)

PATTERN

The pattern will be race track pattern with the 180 approximately 1 1/4 miles abeam at 500 feet above field elevation. The length of the groove should be adjusted to give a wings-level descent on the glide slope of 20-25 seconds (approximately one mile). For maximum gross weight at touchdown, refer to Section I, Part 4. For a 34,000 pound airplane, an optimum "on speed" indexer indication will result in an airspeed of 138 knots IAS. The turn to downwind leg should be 30° angle of bank and 140-150 knots IAS, climbing to 500 feet above field elevation. Recommended airspeed at the 180° position is 140 to 150 knots IAS. Power will be added to effect a level turn onto final. Form the 180° to the 90° position, the airspeed should be corrected for the optimum angle of attack. At approximately the 45° position, the meatball will appear on the mirror. A common error is to begin the descent upon first seeing the meatball. Maintain altitude until the meatball is centered on the mirror, then adjust power and angle of attack as necessary to start a rate of descent that will keep the meatball centered. When a Fresnel lens is used, care must be taken to avoid commencing descent until the airplane is aligned with the centerline, since an idiocyncracy of this lens is to display a false meatball indication when viewed from the approach turn.

INTERVAL

The downwind turn should be commenced when the aircraft on the downwind leg is approximately in the 8 o'clock position. The turn should be made with a 30° angle of bank and 140-150 knots IAS, climbing to 500 feet above field elevation.

GLIDE SLOPE

A 2 1/4 ° to 3° glide slope will be used dependent upon wind conditions. This slope is chosen in order to give the same approximate rate of descent that would be used on the ship.

WAVEOFF TECHNIQUE

Any time the meatball is lost close-in, in the groove, the pilot will initiate his own waveoff. Either MIL or MAX power will be used to effect all waveoffs. Normally, waveoffs will be taken straight ahead, especially when close-in.

BINGO FUEL

No FMLP approach will be commenced with 1500 or less pounds of fuel.

NIGHT FMLP

All provisions which apply to day FMLP also apply to night FMLP plus the following items:

External lights steady - BRIGHT

Hook bypass switch in the BYPASS position

When comfortably situated in the pattern, simulated instruments should be flown as much as possible up to the 45° position.

WARNING

Internal wing fuel will not transfer with landing gear handle down unless the wing transfer pressure switch is in the EMERG position.

PART 4 CARRIER-BASED PROCEDURES

NORMAL OPERATION

PREFLIGHT

Pilots will man aircraft when directed by Air Operations, normally thirty minutes prior to launch time. A normal preflight inspection should be accomplished with particular attention given the landing gear, tires, hook, and underside of the fuselage for possible launching pendant or arresting cable damage. Tie-downs will be left installed until the aircraft is started, if there is not at least 1500 psi pneumatic pressure available on the emergency brake air pressure gage. Be prepared to hold brakes when tie-downs are removed. In the cockpit, particular attention should be given to the pilot's radar scope to insure that the retaining bolts have been installed.

FLIGHT DECK OPERATIONS

PREFLIGHT TAXI

Any signal from the plane director above the waist is intended for the pilot. Any signal below the waist is intended for deck handling personnel. Taxiing aboard ship is much the same as on land with the exception of additional power requirements. Nose gear steering is excellent and requires use of minimum power while taxiing. Taxi speed should be kept under control at all times especially on wet decks and approaching the catapult area. Be prepared to use the emergency air brake should normal braking fail.

POSTFLIGHT TAXI

Taxi as directed and keep the engines running until the CUT signal is given by the plane director. After the engines are cut, use the pneumatic brake. Do not leave cockpit until tie-downs have been installed, the number of which will be dictated by the ship.

HANGAR DECK OPERATIONS

PREFLIGHT

Unless the airplane is already on the elevator, it will be towed or pushed for access to the flight deck. A whistle blast is the signal to stop an airplane being moved by any means other than its own power. Any whistle blast signifies an immediate stop. The plane director must be kept in sight at all times. Prior to start, it will be necessary to use the pneumatic brake. The aircraft will be raised to flight deck level and respotted or started on the elevator.

POSTFLIGHT

The aircraft may be parked on the flight deck or the hangar deck, or it may be taxied from the elevator to the hangar bay. When clear of the elevator, the pilot will be given the CUT signal at which time the canopy will be opened and the helmet removed. The speed will be kept under control and the pneumatic brake will be used at any time that there is doubt of normal braking action. Always be alert for the director's whistle signal.

LAUNCH OPERATIONS

GENERAL

Current applicable BUWEPS Launch Bulletins will be used to augment standard operating procedures. These bulletins will be followed implicitly. No deviations are authorized.

PRIOR TO HOOK-UP

Prior to taxi onto the catapult, pilot's and RSO'S will insure through verbal check-off that the takeoff checklists are complete, and HSI is in the DG mode. Errors are introduced into the SLAVED mode of the HSI due to the magnetic influence of the ship. Refer to applicable Launch Bulletin for temperature, gross weight, flap position, and trim setting considerations. Directional and lateral trim should be set at neutral in all cases, regardless of gross weight, flap position, or power settings.

CAUTION

Catapult launching acceleration can force fuel out of the external tanks through the transfer lines to the fuselage cells at a rate beyond tank venting capability, thus creating a partial vacuum in the external tanks. Therefore, to prevent external tank collapse during a catapult launch, insure that the external transfer switch is in the OFF position prior to launch.

CATAPULT HOOK-UP

Proper positioning on the catapult is easily accomplished if the entry is made with only enough power to maintain forward motion and the plane director's signals are followed explicitly. All functional checks will be performed prior to taxiing onto the catapult, if practicable. The best technique for positioning is

Nose Strut Extension Pressure Minimums

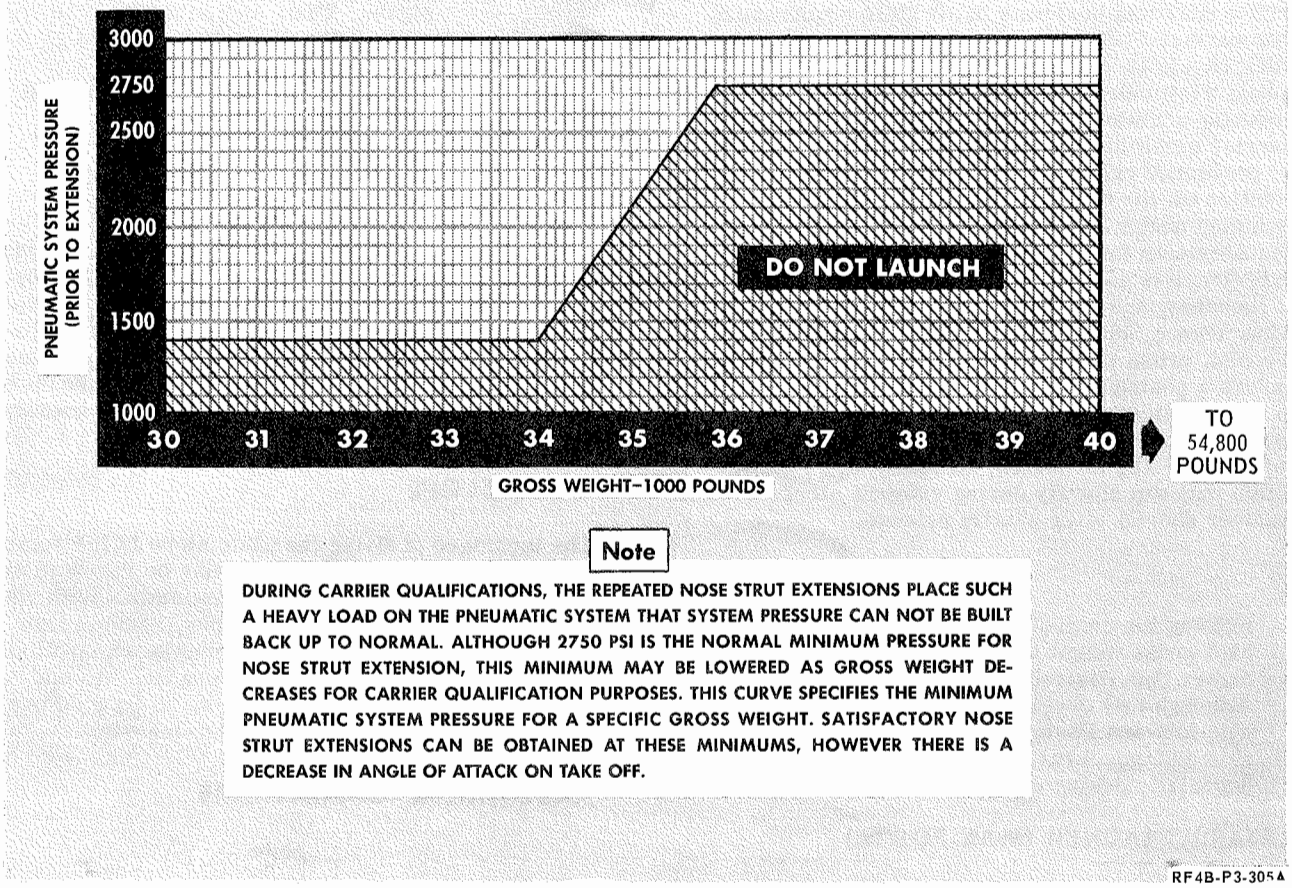

Figure 3-5

to approach the catapult track at a minimum amount of power utilizing nose gear steering. The pilot should sight down the catapult track, acquire the plane director and follow his signals very closely. The pilot should anticipate an initial hold after the nose wheel drops over the shuttle. After crossing the shuttle, prior to catapult tension the nose strut will be extended (see figure 3-5 for nose strut extension pressure minimums). On signal of catapult tensioning, release brakes and advance power slowly to about 80% and anticipate a hand-off signal to the Catapult Officer. After catapult tension, recheck ADI and standby attitude indicator for desired pitch indications.

CAUTION

Do not allow the pneumatic system pressure to exceed 2300 psi with the nose gear extended. If the pneumatic pressure starts to build up above this value, actuate the emergency air brakes as necessary to maintain the pressure below 2300 psi. Allowing the pneumatic system pressure to exceed 2300 psi will subject the nose strut to excessive loads during catapulting.

WARNING

Once the nose strut is extended, any interruption of electrical power, such as cycling both generator switches simultaneously, will cause deflation of the nose strut from the catapult extension condition.

CATAPULT LAUNCH (MIL POWER)

Upon receipt of a two finger turn-up signal from the Catapult Officer, advance throttles to MIL power, check engine instruments and trim settings. Ensure that the head is positioned firmly against the head rest. Use MIL power catapult hand grips or move

throttles outboard into the afterburner detent and use as a throttle stop. When satisfied the aircraft is ready, give an exaggerated salute to the Catapult Officer. Place control stick aft. Control stick positioning during catapult launch is a function of aircraft gross weight and stabilator effectiveness. An increase in gross weight results in an aft c.g. shift with a resultant decrease in aft stick requirement. For normal-to-heavy gross weights, the control stick should be placed in the full aft position for initial positioning and then moved forward slightly reducing aft stick approximately one quarter. For carrier qualification weights, the control stick should be positioned full aft and held in this position until rotation off the bow. Although the aircraft has no trimmed neutral stick position that will meet the requirements for all gross weight launches, pilot experience is gained rapidly with a minimum number of launches, and stick positioning poses no problem. After launch, establish a 10° to 12° pitch angle on the ADI, cross checking the pressure instruments to ensure a positive rate of climb. If the ADI fails or is unreliable during launch, the standby attitude indicator and radar horizon are available for attitude reference. The altimeter, airspeed, and rate of climb may dip slightly during catapult stroke but will recover shortly after shuttle release.

Note

Holding the control stick fully aft during a high gross weight launch will impart a higher than desired airplane rotation rate. Although this overrotation may be stopped with forward stick, it creates an undesirable and unnatural control movement, especially during night or IFR conditions.

CATAPULT LAUNCH (MAX POWER)

When a MAX power launch is scheduled, the following signals will be used:

Two finger turn-up, advance power to MIL.

Catapult Officer responds with 5 fingers (open hand held toward pilot)

Pilot selects MAX power, checks instruments and positions himself, then gives an exaggerated salute to the Catapult Officer. An optional method of selecting the afterburner may be used by advancing the throttles to minimum A/B and assuring an afterburner light-off by noting that the nozzles open slightly. After the catapult fires, advance the throttles to the MAX position.

CATAPULT LAUNCH ABORT PROCEDURE

If, after turn-up on the catapult (Day Launch), the pilot determines that the aircraft is down, he so indicates by shaking his head from side to side at the Catapult Officer. Never raise the hand into view to give a "thumbs down" or make any motion that might be construed as a salute. After the Catapult Officer observes the "no-go" signal, he will then cross his forearms over his face. This signal will be followed by the standard release-tension signal. When the bridle has dropped, the Catapult Officer will then step in front of the wing of the aircraft and give the throttle-back signal. Then, and only then, will the power be reduced. If the aircraft is down after the "go" signal is given, transmit the words "Suspend", "Suspend". This should cause all catapults to be immediately deactivated.

CARRIER LANDING PATTERN

The carrier pattern (figure 3-6) starts with the break at 600 feet, 250-300 knots IAS maximum on the starboard bow of the ship. The break interval will be one-half of the desired ramp interval time. Radio procedures will be in accordance with ship procedures. Fly the pattern at 600 feet above mean sea level. The 180° turn is commenced when abeam the LSO platform. On rollout to final, slightly overshoot the ships wake.

GLIDE SLOPE

The technique of flying the glide slope is the same as FMLP except that more power may be required and line-up will be much harder to maintain. With rough seas and subsequent pitching decks, some erratic meatball movements may be encountered. If this is the case, average out the "bouncing ball" to maintain a smooth and safe rate of descent. In no case overcorrect if the ball moves to a high indication.

ARRESTMENT OPERATIONS

Note

In the event of a blown tire on landing, do not raise the flaps until the flap area has been inspected.

ARRESTED LANDING AND EXIT FROM LANDING AREA

As the aircraft touches down, advance throttles to MIL. Upon completion of landing rollout, reduce power to IDLE, raise the hook and allow the aircraft to roll aft. Apply brakes on signal. Fold wings and have the RSO report wing fold position. Taxi forward on the "come ahead". If, at anytime during this phase of operations, one or both brakes fail, utilize the emergency pneumatic brakes and call the tower and/or signal for chocks to be installed.

Note

After each arrested landing, inspect the stabilator leading edge for damage from arresting cable.

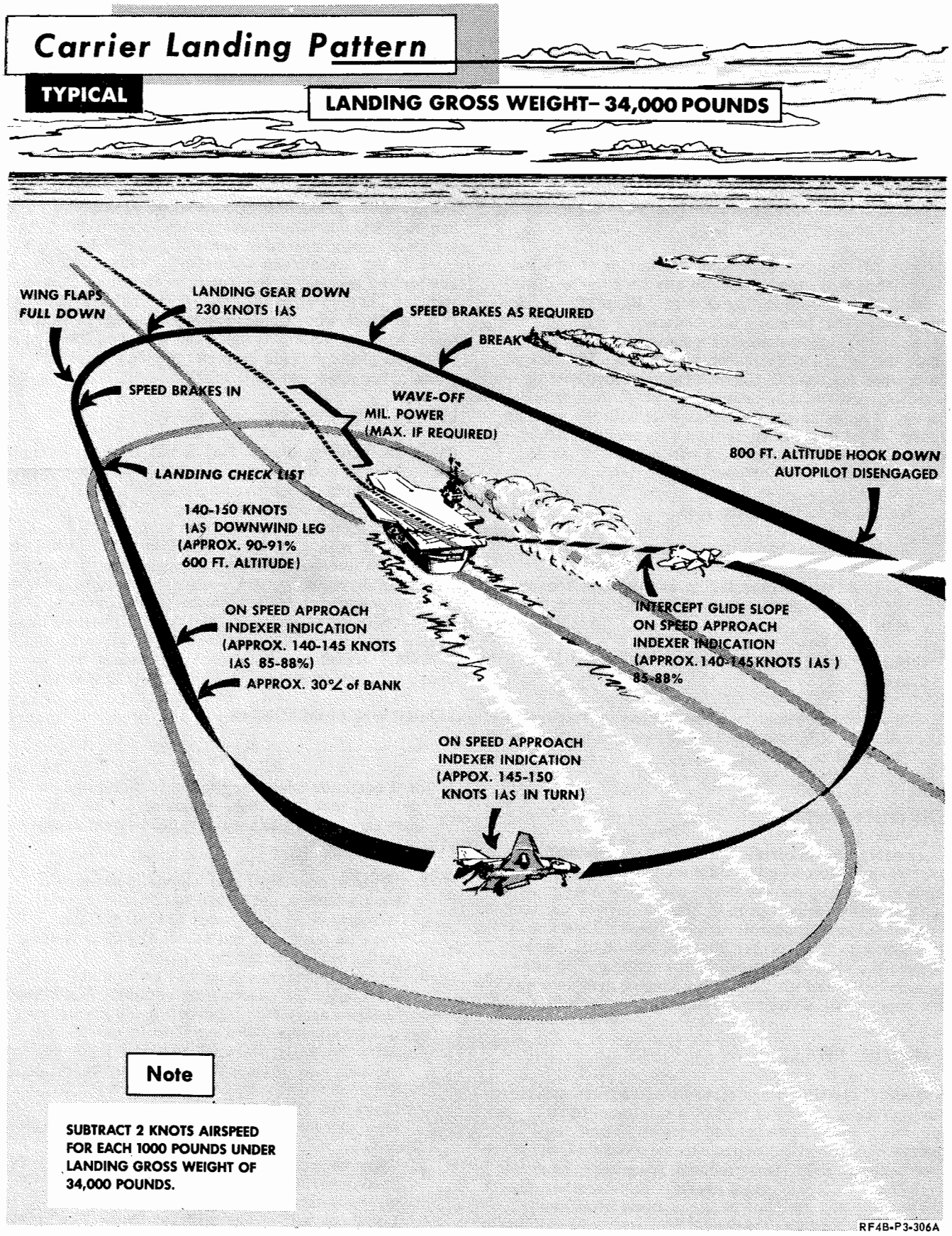
Carrier Landing Pattern
TYPICAL
LANDING GROSS WEIGHT– 34,000 POUNDS
WING FLAPS FULL DOWN
LANDING GEAR DOWN 230 KNOTS IAS
SPEED BRAKES AS REQUIRED
BREAK
SPEED BRAKES IN
WAVE-OFF MIL. POWER (MAX. IF REQUIRED)
800 FT. ALTITUDE HOOK DOWN AUTOPILOT DISENGAGED
LANDING CHECK LIST
140-150 KNOTS IAS DOWNWIND LEG (APPROX. 90-91% 600 FT. ALTITUDE)
ON SPEED APPROACH INDEXER INDICATION (APPROX. 140-145 KNOTS IAS 85-88%)
APPROX. 30°∠ of BANK
INTERCEPT GLIDE SLOPE ON SPEED APPROACH INDEXER INDICATION (APPROX. 140-145 KNOTS IAS) 85-88%
ON SPEED APPROACH INDEXER INDICATION (APPOX. 145-150 KNOTS IAS IN TURN)
Note
SUBTRACT 2 KNOTS AIRSPEED FOR EACH 1000 POUNDS UNDER LANDING GROSS WEIGHT OF 34,000 POUNDS.
RF4B-P3-306A

Figure 3-6

CARRIER CONTROLLED APPROACHES

GENERAL

Note

The procedures and chart in this section are for a typical operation and specifics may vary from ship to ship.

Carrier all-weather approach, or carrier controlled approach (CCA) may be used at any time at the discretion of the Commanding Officer. Normally, CCA approaches will be made individually. Formation penetrations, other than emergencies, will not be made through an aloft overcast more than 10,000 feet thick when the base of the overcast is 3,000 feet or less. Aircraft will be under positive control at all times. The succeeding articles deal with the various phases of jet carrier controlled approach. Carrier all-weather approach or CCA will be used when any of the following weather conditions exist:

Ceiling of 1,500 feet or less

Forward flight visibility of three miles or less

All flight operations during any periods one-half hour after sunset and one-half hour before sunrise

During mandatory let-down in thrunderstorm areas

In any other situation where supervisory personnel can anticipate weather phenomena that might cause pilots difficulty.

ENROUTE PHASE

Normally, CAP aircraft will contact Approach Control when directed by the CAP controller. Inbound aircraft that are not under the control of another agency will be expected to Contact Approach Control when entering the 50-mile control area. This area is defined as the circular 50-mile radius airspace around the ship and extending upward from the surface to unlimited altitude. The control area is under the cognizance of Approach/Departure Control.

ARRIVAL PHASE

Normally, the time when aircraft will arrive at Marshal point for recovery will be a minimum of 20 minutes before the scheduled recovery time. Approach Control will confirm aircraft Marshal, altimeter setting, EAC, final control frequency, expected FOXTROT CORPEN, time check, ship's weather, and the bearing and distance to Bingo Field when used. Rather than making repetitious broadcasts to individual aircraft, items that are of general interest to all pilots may be broadcast blind every few minutes by Approach Control. Inbound/final bearings may be given at this time.

HOLDING PHASE

Five minutes prior to penetration, defogging will be actuated and maximum comfortable interior temperature will be maintained to prevent possible fogging or icing on the windscreen and canopy. Pilots will manage fuel so that the aircraft will be at proper landing weight upon arrival at the ramp. The holding pattern is a left-hand, six-minute, race-track pattern with inbound heading passing through the assigned fix. Each pilot will plan his flight pattern to depart Marshal Point at his approved EAC.

LET-DOWN PHASE

The CCA let-down (figure 3-7) is based on the carrier being into the wind and effectively generating approximately 30 knots of headwind before the first aircraft commences its descent. If the carrier is not on the wind-line, there will be difficulty in making all descent check points. A speed of 250 knots IAS must be maintained to ensure proper interval unless a speed change is directed by CCA. Adjust altitude with power and configuration--not airspeed. (A maximum of 300 knots CAS and minimum of 200 knots IAS will be used during the descent when speed changes are directed by CCA.) Radar and barometric altimeters will be cross checked continuously when below 10,000 feet.

LET-DOWN PROCEDURES

Note

If it becomes necessary to dump fuel during a descent, thrust settings in excess of 85% rpm may be required to insure rapid inflight dumping.

1. Prior to descent, check shoulder harness handle locked, set lights as dictated by existing weather, and lower arresting hook.
2. Turn on pitot heat and select engine anti-icing system as appropriate.
3. Accomplish final changes to radio and IFF upon departing Marshal or earlier. After these changes are made, pilot will make no further changes except under emergency conditions.
4. After departing Marshal, use only three-digit aircraft side numbers in radio transmissions. This is satisfactory for deployed air group operation. For CARQUALS, squadron call sign may have to be added to eliminate confusion.
5. When commencing penetration, initiate a standard descent--250 knots IAS, 4,000 feet per minute minimum, speed brakes (as desired).
6. Using the rule of one mile for every 1,000 feet of altitude plus 15 miles, make all check points and adjust power as necessary.

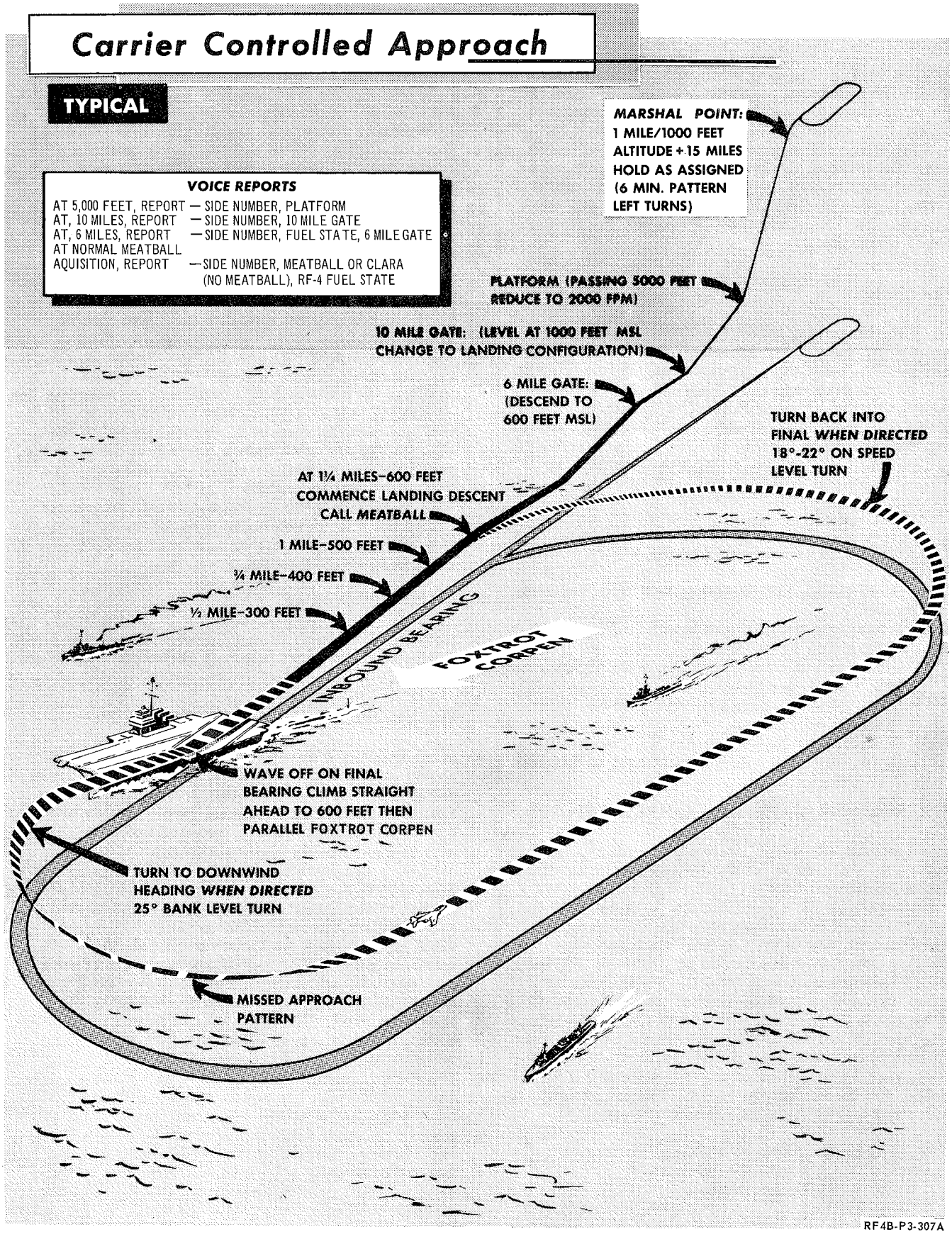
Carrier Controlled Approach
TYPICAL
VOICE REPORTS
AT 5,000 FEET, REPORT — SIDE NUMBER, PLATFORM
AT, 10 MILES, REPORT — SIDE NUMBER, 10 MILE GATE
AT, 6 MILES, REPORT — SIDE NUMBER, FUEL STATE, 6 MILE GATE
AT NORMAL MEATBALL AQUISITION, REPORT — SIDE NUMBER, MEATBALL OR CLARA (NO MEATBALL), RF-4 FUEL STATE
MARSHAL POINT: 1 MILE/1000 FEET ALTITUDE +15 MILES HOLD AS ASSIGNED (6 MIN. PATTERN LEFT TURNS)
PLATFORM (PASSING 5000 FEET REDUCE TO 2000 FPM)
10 MILE GATE: (LEVEL AT 1000 FEET MSL CHANGE TO LANDING CONFIGURATION)
6 MILE GATE: (DESCEND TO 600 FEET MSL)
TURN BACK INTO FINAL WHEN DIRECTED 18°-22° ON SPEED LEVEL TURN
AT 1¼ MILES-600 FEET COMMENCE LANDING DESCENT CALL MEATBALL
1 MILE-500 FEET
¾ MILE-400 FEET
½ MILE-300 FEET
INBOUND BEARING
FOXTROT CORPEN
WAVE OFF ON FINAL BEARING CLIMB STRAIGHT AHEAD TO 600 FEET THEN PARALLEL FOXTROT CORPEN
TURN TO DOWNWIND HEADING WHEN DIRECTED 25° BANK LEVEL TURN
MISSED APPROACH PATTERN
RF4B-P3-307A

Figure 3-7

CORRECTIONS TO NEW INBOUND/FINAL BEARING

Making corrections to new inbound or final bearing is a maneuver that can result in unacceptable aircraft interval unless corrections are uniform. Squadrons will have to conform to the ship's procedures for making corrections to final bearing in order to insure that aircraft interval is constant. Corrections to final bearing will be made either in response to vectors given by CCA, or by taking a specific "cut" at a specific Tacan distance. Final bearing should be set in on the HSI.

PLATFORM

At 20 miles passing through 5,000 feet, aircraft descent will be slowed to 2,000 feet per minute. At this point, a mandatory unacknowledged voice report will be broadcast by each pilot. The aircraft side number will be given and the word "platform" will be stated. Descent is continued at 2,000 feet per minute and the aircraft is leveled at 1,000 feet (normally 10 to 12 miles out), 250 knots IAS, speed brakes in.

TEN MILE GATE

The following procedures will apply:

1. At 10 miles, call "side number" and "ten-mile gate".
2. Commence transition to landing configuration, maintaining 1,000 feet.
3. Gear down at 10 miles--flaps down at 195 knots IAS. (Uniform speed for interval control after passing the ten-mile gate will have to conform to ship's procedures.)
4. Complete the landing checklist. Check anti-ice, lights, rain removal, and pitot heat as desired.

SIX MILE GATE/FINAL CONTROL PHASE

When passing six miles, call "side number", "fuel state", and "six-mile gate". Unless otherwise directed, a gradual descent to 600 feet will be made when departing the six-mile gate. In order that intervals remain constant, ship procedures as to when aircraft are slowed to final approach speed after passing six miles should be followed. Altitude of 600 feet is maintained until the Final Controller calls "commence landing descent", or the meatball is observed to be centered. At 600 feet, aircraft will intercept the center of the glide slope at 1 1/4 miles on a four-degree slope. If ceilings or visibility preclude visual acquisition of the meatball at 1 1/4 miles, 500 to 700 feet per minute descent passing the following check points should be continued:

1 mile -- 500 feet
3/4 mile -- 400 feet
1/2 mile -- 300 feet

With a well qualified CCA team and air group, suggested minimum for the airplane is 300-foot ceiling, one-mile visibility.

MEATBALL CONTACT

When ready to continue a visual approach, the pilot reports "side number, meatball or clara (no meatball), RF-4, fuel state", and checks exterior lights on. The LSO will acknowledge and the Final Control instructions cease when the pilot reports "meatball". Because of this, pilots are cautioned against premature contact reports during night recoveries when visibility permits sighting the ship beyond two or three miles. There is little depth perception even under the most ideal conditions and it is difficult to judge distance from the ship without reference to Tacan. During night VFR conditions, pilots must cross check Tacan DME to ensure that they are actually at 1 1/4 miles, 600 feet, prior to reporting meatball and commencing descent. The height, dimension of the lens or mirror optical beam at 1 1/4 miles is over 200 feet and the true center is difficult to distinguish. This coupled with the relatively short length of the runway lights, will give the pilot the illusion of being on glide slope and high when, in fact, the aircraft may be 50 to 100 feet below the glide slope. An additional advantage of delaying the meatball report until reaching 1 1/4 miles -- even though the ball is in sight -- is that Final Control will continue line-up instructions that can greatly assist the pilot in establishing satisfactory line-up. Use the vertical velocity indicator to set up a rate of descent of 500 to 700 feet per minute.

VOICE PROCEDURE

Detailed pilot/controller voice procedure must be established in accordance with each ship's CCA doctrine.

WAVEOFF AND BOLTER PHASE

In the event of a waveoff or bolter, MIL/MAX power should be added as necessary, climb straight ahead to 600 feet, and maintain 150 knots IAS. When directed by CCA, initiate a level turn to the downwind leg. If no instructions are received within two minutes (approximately 6 miles distance on Tacan), assume communications failure and initiate the downwind turn to the reciprocal of Foxtrot Corpen. A 25-degree bank angle at 150 knots IAS on the upwind turn will establish the aircraft at the desired 1 3/8 to 1 1/2 miles abeam on the downwind leg. Aircraft that undershoot or overshoot a proper downwind leg may be vectored back to a proper abeam position. Slow to proper approach speed when approaching the abeam position. This position can be established by using a relative Tacan bearing of 15 degrees aft of the wing at 1 3/4 to 2 miles on DME when on the downwind heading. Final Control will clear the aircraft to turn back inbound to intercept the final bearing. A level, "on speed" approach turn of 18 to 20 degrees bank angle from the normal abeam position will allow the aircraft to properly intercept the final inbound bearing at 1 1/4 to 1 1/2 miles aft on the ship. Traffic spacing ahead may require that the aircraft continue on downwind leg well past the normal abeam position before being directed to turn to final bearing. A distance aft of the ship should be specified at which a pilot may assume communica-

tions failure and initiate his own turn to final bearing. No attempt should be made to establish visual contact with the ship when executing a CCA until the final approach turn has been executed. When fuel considerations become critical in an extended bolter pattern, 300 to 400 pounds per pass may be saved by raising the landing gear and selecting half flaps. Lower landing gear and full flaps on final. The "Wheels" light on the pilot's panel will flash with the flaps down.

FOULED DECK HOLDING

Details of fouled deck holding will have to be established in accordance with each ship's CCA doctrine.

In general, if fouled deck holding is initiated, aircraft should remain at present altitude and fly maximum endurance airspeeds. Fouled deck holding is initiated by the ship transmitting, "All aircraft signal Delta". The best "gouge" for maximum endurance at any altitude is to fly 9 units on the angle of attack indicator, and utilize minimum bank angles. This pre-supposes that all aircraft in the landing configuration will retract gear and flaps. If necessary, as fuel becomes critical with no Bingo field available, jettison external stores. In extreme emergency situations, a small amount of fuel (approximately 10 pounds per minute) can be saved by securing one engine at sea level, landing gross weights.

NIGHT FLYING

GENERAL

Night carrier operations will have a much slower tempo than daylight operations and it is the pilot's responsibility to maintain this tempo. The procedures outlined here are different from, or in addition to, normal day carrier operations.

BRIEFING

Prior to initial night flight operations, all pilots will receive an additional briefing from the following persons:

Flight Deck Officer
Catapult Officer
Arresting Gear Officer
LSO

Individual flight briefings will include all applicable items outlined above, with particular emphasis on weather and Bingo fuel. The ready room will be lighted for night adaptation during briefings. In addition, pilots may wear night adaptation glasses from the ready room to the flight deck to prevent loss of night vision.

PREFLIGHT

External preflight will be made utilizing the red lensed flashlight. In addition to normal cockpit preflight, insure that external light switches are properly positioned for poststart light check. The general rule of not showing white lights on the flight deck at night should be observed.

POSTSTART

Adjust cockpit light intensity to desired level. When ready for taxi, indicate with appropriate signal.

TAXI

Night deck handling operations are of necessity slower than those used during the day. When a doubt arises as to the meaning of a signal from a taxi director, stop.

CATAPULT HOOK-UP

Maneuvering the aircraft for catapult hook-up at night is identical to that used in day operation; however, it is difficult to determine your speed or degree of motion over the deck. The pilot must rely upon, and follow closely, the plane director's signals.

CATAPULT LAUNCH

On turnup signal from Catapult Officer, assure throttles in MIL and check all instruments. When ready to go, place external light master switch ON (dim/bright and steady), fuselage light OFF. After launch, establish a 10 to 12° pitch angle on the ADI, cross checking the standby attitude indicator, and the pressure instruments to ensure a positive rate of climb. Retrack the landing gear. Five hundred feet is considered to be minimum altitude for retraction of flaps. When well established in a climb, switch lights to bright and flashing or as applicable for an instrument climb-out. The standby attitude indicator or radar gyro should be used in the event of an ADI malfunction. NEW

CATAPULT ABORT PROCEDURES

The pilot's "no-go" signal for night launches will be not to turn on his exterior lights. The pilot should also call on land/launch and advise with "Side No., Cat No., is down". Maintain MIL power until the throttle-back signal is received from the Catapult Officer standing in front of the wing of the aircraft. In the event of a catapult malfunction, the above signals will also apply. If the aircraft is down after the "go" signal is given, transmit the words "Suspend", "Suspend". This should cause all catapults to be immediately deactivated. NEW

ARRESTMENT AND EXIT FROM LANDING AREA

Except for carrier qualifications, all night recoveries will be made utilizing Tacan/CCA approaches. LSO should take control when the aircraft is approximately one mile from the ramp. The pilot should have all lights on bright and steady. At end of arrestment rollout, turn off external lights and follow director's signals.