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# APPROACH CONTROL

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OCTOBER 1, 1942

5-23/64

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## DESCRIPTION OF APPROACH CONTROL PROCEDURES

### General

Approach control basically requires that jurisdiction over arriving and departing aircraft at a specified location be delegated from an airway traffic control center to an airport traffic control tower operated by the Civil Aeronautics Administration.

This delegation of authority is made possible due to the presence of Civil Aeronautics Administration personnel in certain airport traffic control towers and the close coordination between the airway traffic control center and airport traffic control tower concerned.

In such instances the control tower will operate the voice feature of the adjacent radio range station for all communications with arriving aircraft under all weather conditions. The use of the appropriate radio range voice frequency permits direct communication between the pilot and the airport traffic controller during instrument weather conditions, as well as during contact flight rule weather conditions, and will eliminate much delay in the issuance of instructions to holding and approaching aircraft, under instrument conditions, with the resultant savings in time for each instrument approach made.

At certain designated locations special instrument approach procedures are utilized which reduce the time interval between approaching aircraft from approximately 15 minutes to 5 minutes. These procedures are basically: (a) the holding of aircraft in an approach sequence at a radio fix on the approach leg of the radio range station, (b) the direct communication between the holding aircraft and the airport traffic controller, (c) and



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straight-in approaches from the holding fix to the airport. Under such conditions succeeding aircraft are authorized to approach at specified time intervals after the preceding aircraft has reported leaving the holding fix on approach to the field.

At other locations where approach control procedures are in effect, the radio range station is used as the holding fix for aircraft in an approach sequence. Such aircraft are also in direct communication with the airport traffic controller on radio range frequency, and pertinent instructions relative to descent and approach are issued by the airport traffic controller. In this case the time interval between approaching aircraft is longer than when the aircraft are held at a fix on the approach leg since each aircraft must make a complete instrument approach before succeeding aircraft are authorized to start an approach.

The pilot has nothing new to learn under these procedures except that direct communication with the controller in the tower will be maintained through the voice channel of the range after receipt of a clearance from the appropriate airway traffic control center authorizing such direct communications, and only this communications channel should be utilized thereafter.

Where approach control procedures are in effect under instrument flight rules the aircraft will be cleared to the holding fix, (range station or other radio fix) with appropriate holding instructions, by the airway traffic control center through appropriate communications facilities. The center will include instructions in the holding clearance for the aircraft to hold "UNTIL FURTHER ADVISED BY THE (Name of Tower) TOWER." This will indicate to the pilot that all subsequent instructions relative to holding, descent, and approach will be issued by the tower on the voice channel of the radio range station, and the pilot is expected to establish communications with the tower on range frequency when he arrives over the specified holding fix.

Under contact flight rules the airway traffic control center will clear aircraft to the tower. The pilot is then expected to contact the tower on range frequency when approximately 15 miles from the airport and receive clearance to enter traffic pattern and other necessary information before entering the traffic pattern.

## Communications Contacts Required by the Pilot

The following communications contacts are required by the pilot under instrument flight rule conditions:

(a) Report to the tower the time and altitude of reaching the specified holding point or fix to which cleared by the airway traffic control center.

(b) Report to the tower when vacating any previously assigned flight level for a new assigned level.

(c) Report to the tower when leaving any assigned holding point.

(d) Report to the tower, on request, when making procedure turn for final approach.

(e) Report to the tower, on request, when over range station on final approach.

(f) Report to the tower, on request, when ground contact is established.

Frequencies Guarded by the Pilot

The pilot will guard the approach control (radio range voice channel) frequency after being cleared to the tower or after being cleared to a holding fix "until advised by the tower". All ground to aircraft communications from the tower will be accomplished on the voice channel of the range until the actual landing is accomplished. Immediately upon completing the landing, and preferably before the landing roll is completed, the pilot should tune to the tower local control frequency (278 kilocycles or other assigned frequency) for taxi instructions.

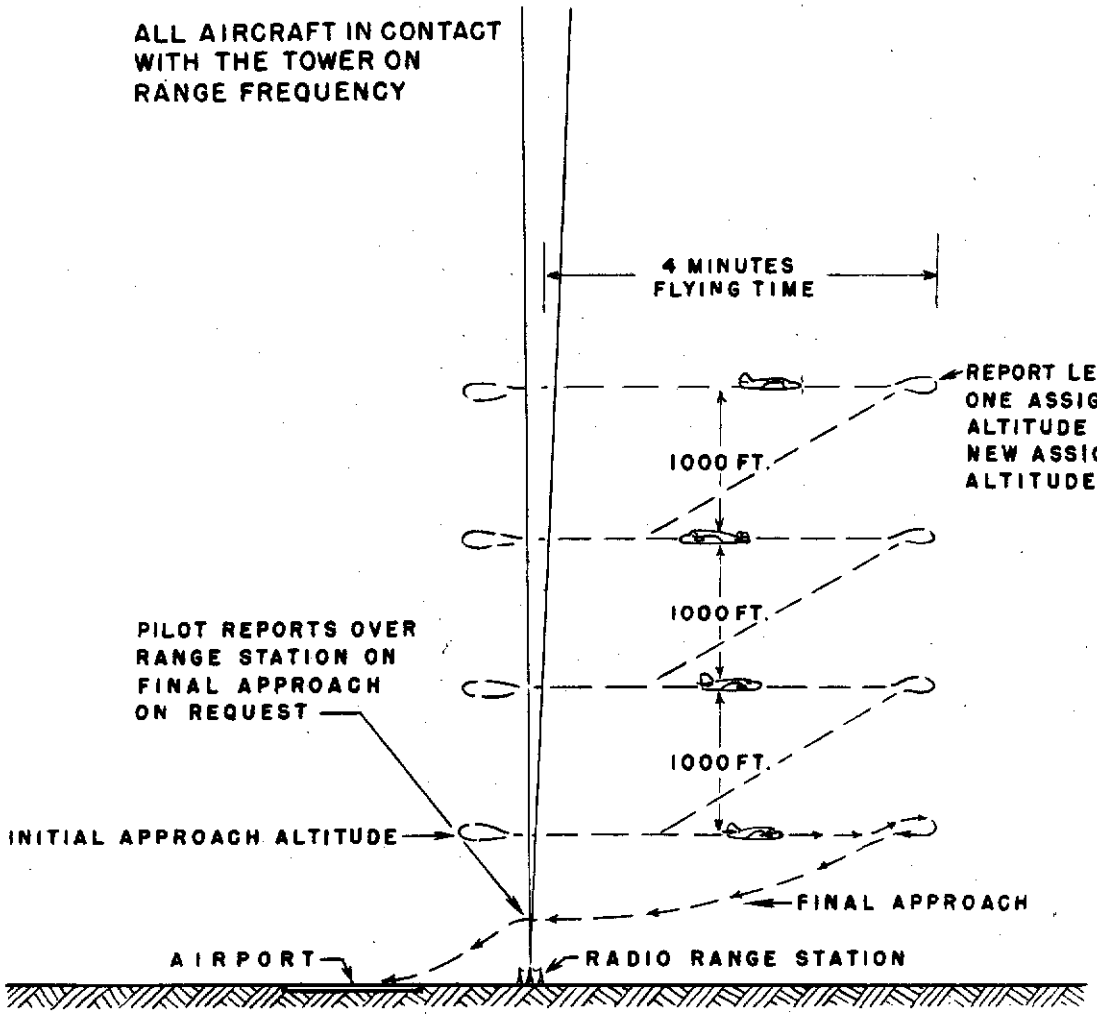
If the pilot desires to use the navigational feature only to assist in executing an instrument approach, after an approach has been authorized, he may filter out, or detune, the voice channel during his approach after so advising the tower. If the tower wishes to contact the pilot during this period, the tower will operate the "attention signal" (series of short dots on range frequency) to indicate to the pilot that urgent instructions follow, whereupon the pilot will tune in the voice frequency. It is thought that such instances will be rare, and the pilot will have, if desired, full advantage of the navigational feature of the range during final approach.

All instructions to departing aircraft (taxi instructions, wind direction and velocity, time check, altimeter setting, runway number, airway traffic control clearance, take-off instructions, etc.) will be issued by the tower on local control frequency.

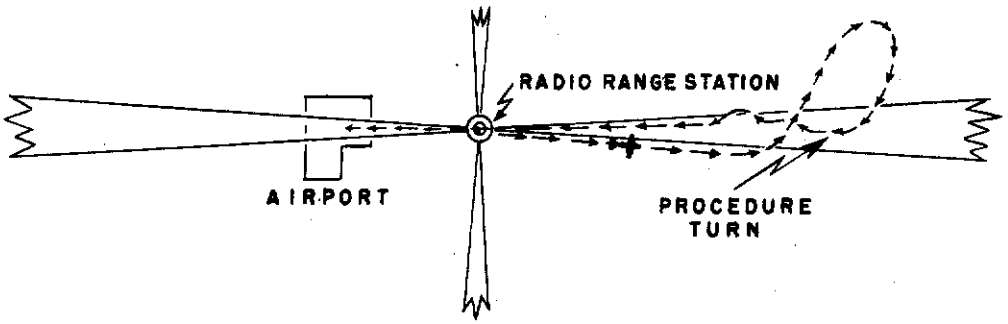
EXAMPLES OF PROCEDURES AND PHRASEOLOGIES

Range Station Used as Holding Fix

Assume that an Army aircraft, Call number ARMY 1234, receives the following clearance issued by an airway traffic control center:




HOLDING OVER RANGE STATION AND DIAGRAM OF INSTRUMENT APPROACH




PLAN VIEW

**Figure 1**

ARMY ONE TWO THREE FOUR CLEARED TO BLANK RANGE STATION, MAINTAIN 5000 FEET, HOLD ON WEST LEG OF BLANK RANGE BETWEEN RANGE STATION AND POINT 4 MINUTES WEST UNTIL ADVISED BY BLANK TOWER, EXPECT APPROACH CLEARANCE AT ONE THREE FOUR SIX.

The Army aircraft arrives over the Blank range station, proceeds out the west leg of the range station in accordance with his holding instructions and immediately reports to the tower as follows:

Pilot: BLANK TOWER FROM ARMY ONE TWO THREE FOUR, OVER BLANK RANGE ONE FOUR AT FIVE THOUSAND, HOLDING ON WEST LEG, GO AHEAD.

The tower acknowledges over the voice channel of the range and gives the current altimeter setting and time check as follows:

Tower: ARMY ONE TWO THREE FOUR FROM BLANK TOWER. OVER BLANK RANGE ONE FOUR AT FIVE THOUSAND. ALTIMETER SETTING THREE ZERO ZERO FIVE. TIME ONE FOUR AND ONE HALF.

Subsequent clearances and instructions will be issued on approach control (range) frequency, and will ordinarily be confined to altitude instructions until clearance to enter traffic pattern, or to land, is issued. An example follows:

Tower: ARMY ONE TWO THREE FOUR, DESCEND TO FOUR THOUSAND IMMEDIATELY.

Pilot: ARMY ONE TWO THREE FOUR LEAVING FIVE THOUSAND AT TWO ZERO.

The aircraft is stepped down in this manner until clearance to enter traffic pattern, or to land, may be issued. Such clearance contains all information essential to an approach and is issued on approach control frequency.

Tower: ARMY ONE TWO THREE FOUR CLEARED TO ENTER TRAFFIC PATTERN. FINAL APPROACH ON WEST LEG OF BLANK RANGE. REPORT WHEN CONTACT. WIND NORTH SEVEN. RUNWAY THREE SIX.

Pilot: ARMY ONE TWO THREE FOUR. WILCO.

The pilot reports when contact as requested:

Pilot: ARMY ONE TWO THREE FOUR CONTACT AT EIGHT HUNDRED THREE MILES WEST OF THE FIELD.

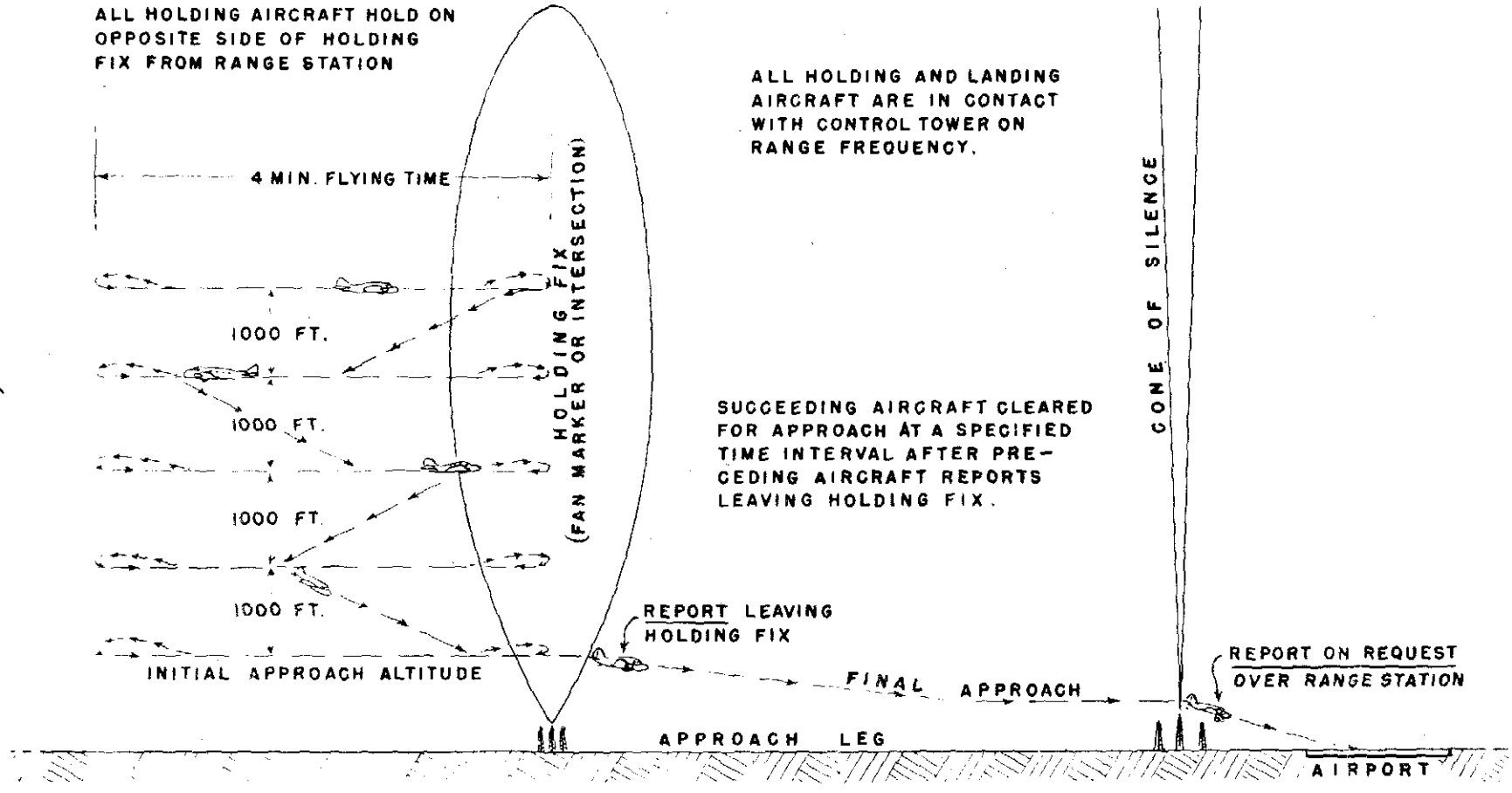



DIAGRAM OF AIRCRAFT HOLDING AT FIX ON THE APPROACH LEG WITH APPROACH CONTROL PROCEDURES IN OPERATION

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Figure 2

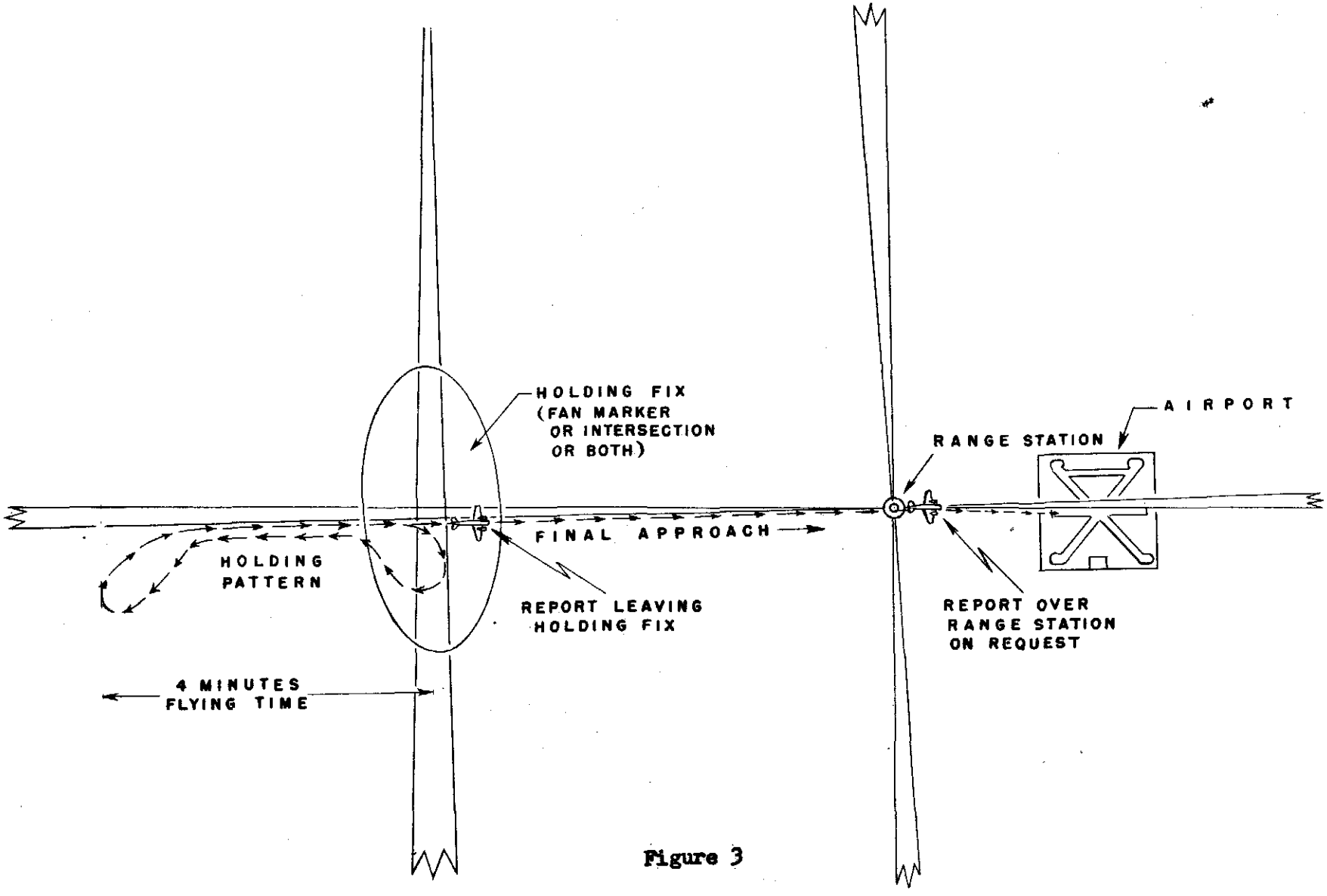



Figure 3

PLAN VIEW OF AIRCRAFT HOLDING AT A FIX ON APPROACH LEG
WITH APPROACH CONTROL PROCEDURES IN OPERATION

The tower then issues clearance to land:

Tower: ARMY ONE TWO THREE FOUR CLEARED TO LAND.

When traffic conditions permit, the tower will issue the clearance to land in lieu of the clearance to enter traffic pattern. In the example cited above the clearance would be issued as follows:

Tower: ARMY ONE TWO THREE FOUR CLEARED TO LAND.
FINAL APPROACH ON WEST LEG OF BLANK RANGE.
WIND NORTH SEVEN. RUNWAY THREE SIX.

Normally no further communication between the tower and aircraft is required after clearance to land is issued until the landing has been accomplished. At that time the pilot changes over to local control frequency for taxi instructions.

Radio Fix on Approach Leg Used as Holding Fix

Assume that the same Army aircraft, Call number Army 1234, referred to in the above example, is destined for another location where approach control procedures are in operation, and at this location aircraft in an approach sequence are held at a radio fix on the approach leg. Assume further that the holding fix is on the west leg of the Blankville radio range station and is designated as "Madison", and the aircraft receives the following clearance:

ARMY ONE TWO THREE FOUR CLEARED TO MADISON,
MAINTAIN FOUR THOUSAND FEET, HOLD WEST OF
MADISON UNTIL ADVISED BY BLANKVILLE TOWER,
EXPECT APPROACH CLEARANCE AT ZERO NINE FIVE
TWO.

The Army aircraft arrives over the Madison fix, proceeds to hold on west leg of the Blankville range between Madison and point four minutes west of Madison, and immediately reports to the tower as follows:

BLANKVILLE TOWER FROM ARMY ONE TWO THREE
FOUR OVER MADISON TWO EIGHT AT FOUR THOUSAND,
HOLDING WEST OF MADISON, GO AHEAD.

The tower acknowledges over the voice channel of the Blankville range, and gives current altimeter setting and time check as follows:

Tower: ARMY ONE TWO THREE FOUR FROM BLANKVILLE TOWER. OVER MADISON TWO EIGHT AT FOUR THOUSAND. ALTIMETER SETTING TWO NINE NINE SIX. TIME TWO NINE.

Pilot: ARMY ONE TWO THREE FOUR, ROGER.

Subsequent clearances and instructions will be issued on approach control (range) frequency as in the case of aircraft holding over the range station. An example follows:

Tower: ARMY ONE TWO THREE FOUR, DESCEND TO THREE THOUSAND IMMEDIATELY.

Pilot: ARMY ONE TWO THREE FOUR LEAVING FOUR THOUSAND AT THREE TWO.

As in the case of aircraft holding over the range station, the aircraft is stepped down in this manner until clearance to enter the traffic pattern, or to land, is issued. However, in the case of aircraft holding at a fix on the approach leg the succeeding aircraft is cleared down to the initial approach altitude on the holding side of the holding fix after the preceding aircraft has reported leaving the holding fix on final approach. This procedure eliminates that portion of the time delay in descending from an assigned altitude above the initial approach altitude to the initial approach altitude after receipt of clearance authorizing an approach. To illustrate, assume that an air carrier aircraft, American Airlines Flight Three is preceding Army 1234 in the approach sequence and is holding at two thousand feet (initial approach altitude in this case) west of Madison and that Army 1234 is now holding at three thousand feet. The following clearance is issued to American Three:

Tower: AMERICAN THREE, CLEARED TO LAND. WIND EAST SEVEN. RUNWAY NINE.

Pilot: AMERICAN THREE, WILCO.

American Flight Three then starts his final approach, crosses the Madison fix, descending from two thousand to final approach altitude (altitude crossing the range station) and reports:

Pilot: AMERICAN THREE LEAVING MADISON, LEAVING TWO THOUSAND AT FOUR SIX.

The tower now has information that American Flight Three is on the East side of Madison and below two thousand feet on final approach. The following clearance is then issued to Army 1234:

Tower: ARMY ONE TWO THREE FOUR, DESCEND TO TWO THOUSAND IMMEDIATELY.

Pilot: ARMY ONE TWO THREE FOUR LEAVING THREE THOUSAND AT FOUR SEVEN.

At a specified time interval after American Three has passed Madison on final approach (the time will vary according to location and facilities - will normally be from 5 to 8 minutes), the tower will authorize Army 1234 to commence approach. The approach clearance will either be in the form of clearance to land (if traffic conditions permit - in this case American Three would definitely be in sight of the tower and the tower assured that landing would be definitely accomplished) or in the form of clearance to enter traffic pattern if conditions are such that other traffic is in the traffic pattern. The clearance would be as follows:

Tower: ARMY ONE TWO THREE FOUR, CLEARED TO LAND. WIND EAST EIGHT, RUNWAY NINE.

Pilot: ARMY ONE TWO THREE FOUR, WILCO.

The pilot again reports when leaving Madison and initial approach altitude:

Pilot: ARMY ONE TWO THREE FOUR LEAVING MADISON, LEAVING TWO THOUSAND AT FIVE TWO.

The pilot continues the approach, and accomplishes landing while tuned to approach control (range) frequency. After the landing has been completed the pilot tunes to tower local control frequency for taxi instructions.