

b. An aircraft may be cleared to operate on jet routes below the MEA (but not below the prescribed minimum altitude for IFR operations) or above the maximum authorized altitude if, in either case, radar service is provided.

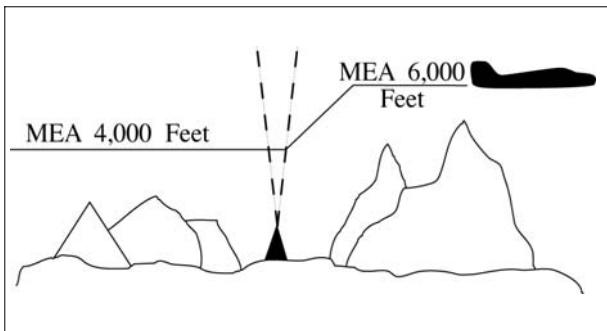
NOTE-

Minimum en route and maximum authorized altitudes for certain jet route segments have been established above the floor of the jet route structure due to limitations on navigational signal coverage.

c. Where a higher altitude is required because of an MEA, the aircraft must be cleared to begin climb to the higher MEA as follows:

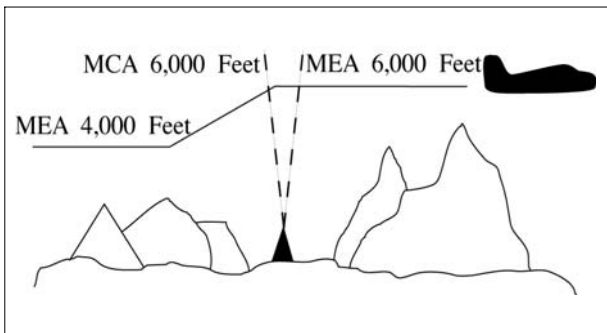
1. If no MCA is specified, prior to or immediately after passing the fix where the higher MEA is designated. (See FIG 4-5-1.)

**FIG 4-5-1
No MCA Specified**



2. If a MCA is specified, prior to the fix so as to cross the fix at or above the MCA. (See FIG 4-5-2.)

**FIG 4-5-2
MCA Specified**



d. GNSS MEAs may be approved on published ATS routes. Air traffic may assign GNSS MEAs to GNSS-equipped aircraft where established.

NOTE-

On high altitude ATS routes, the GNSS MEA is FL180 unless published higher.

e. Where MEAs have not been established, clear an aircraft at or above the minimum altitude for IFR operations prescribed by 14 CFR Section 91.177.

REFERENCE-

- FAAO JO 7110.65, Para 4-2-8 IFR-VFR and VFR-IFR Flights.
- FAAO JO 7110.65, Para 4-4-1 Route Use.
- FAAO JO 7110.65, Chapter 5, Section 6, Para 5-6-1 Application.
- FAAO JO 7110.65, Para 7-7-5 Altitude Assignments.

4-5-7. ALTITUDE INFORMATION

Issue altitude instructions as follows:

REFERENCE-

- FAAO JO 7110.65, Para 4-2-1 Clearance Items.

a. Altitude to maintain or cruise. When issuing cruise in conjunction with an airport clearance limit and an unpublished route will be used, issue an appropriate crossing altitude to ensure terrain clearance until the aircraft reaches a fix, point, or route where the altitude information is available to the pilot. When issuing a cruise clearance to an airport which does not have a published instrument approach, a cruise clearance without a crossing restriction may be issued.

PHRASEOLOGY-

MAINTAIN/CRUISE (altitude). MAINTAIN (altitude) UNTIL (time, fix, waypoint),

or

(number of miles or minutes) MILES/MINUTES PAST (fix, waypoint).

CROSS (fix, point, waypoint),

or

INTERCEPT (route) AT OR ABOVE (altitude), CRUISE (altitude).

NOTE-

1. The crossing altitude must assure IFR obstruction clearance to the point where the aircraft is established on a segment of a published route or instrument approach procedure.
2. When an aircraft is issued a cruise clearance to an airport which does not have a published instrument approach procedure, it is not possible to satisfy the requirement for a crossing altitude that will ensure terrain clearance until the aircraft reaches a fix, point, or route where altitude information is available to the pilot. Under those conditions, a cruise clearance without a crossing

restriction authorizes a pilot to determine the minimum IFR altitude as prescribed in 14 CFR Section 91.177 and descend to it at pilot discretion if it is lower than the altitude specified in the cruise clearance.

b. Instructions to climb or descend including restrictions, as required. Specify a time restriction reference the UTC clock reading with a time check. If you are relaying through an authorized communications provider, such as ARINC, FSS, etc., advise the radio operator to issue the current time to the aircraft when the clearance is relayed. The requirement to issue a time check must be disregarded if the clearance is issued via Controller Pilot Data Link Communications (CPDLC).

EXCEPTION. If you are in direct, two-way, VHF/UHF voice communication with the pilot and the aircraft is in radar contact, you may specify an elapsed time interval restriction, in full minute increments only, without any reference to the UTC clock. The time restriction begins once the clearance has been acknowledged by the pilot.

EXAMPLE—

1. “United Four Seventeen, climb to reach one three thousand at two two one five.”

“Time two two one one and one-quarter.”

The pilot is expected to be level at 13,000 feet at 2215 UTC.

2. Through Relay—“Speedbid Five, climb to reach flight level three-five zero at one-two-one-five, time” (Issue a time check).

3. In radar contact and in direct controller to pilot, two-way, VHF/UHF voice communication - “United Four Seventeen, descend to reach flight level three five zero within two minutes.” The time restriction begins once the clearance has been acknowledged by the pilot.

4. “United Four Seventeen climb to leave flight level three three zero within two minutes, maintain flight level three five zero.”

REFERENCE—

FAAO JO 7110.65, Para 1-2-1 Word Meanings.

FAAO JO 7110.65, Para 2-4-17 Numbers Usage.

PHRASEOLOGY—

CLIMB/DESCEND AND MAINTAIN (altitude).

If required,

AFTER PASSING (fix, waypoint),

or

AT (time) (time in hours, minutes, and nearest quarter minute).

CLIMB/DESCEND TO REACH (altitude)
AT (time (issue time check) or fix, waypoint),

or

AT (time). CLIMB/DESCEND AND MAINTAIN (altitude)
WHEN ESTABLISHED AT LEAST (number of miles or minutes) MILES/MINUTES PAST (fix, waypoint) ON THE (NAVAID) (specified) RADIAL.

CLIMB/DESCEND TO REACH (altitude) AT (time or fix, waypoint),

or

A POINT (number of miles) MILES (direction) OF (name of DME NAVAID),

or

MAINTAIN (altitude) UNTIL (time (issue time check), fix, waypoint), THEN CLIMB/DESCEND AND MAINTAIN (altitude).

Through relay:

CLIMB TO REACH (altitude) AT (time) (issue a time check).

Or

Using a time interval while in radar contact and in direct controller to pilot, two-way, VHF/UHF voice communication:

CLIMB/DESCEND TO REACH/LEAVE (altitude)
WITHIN (number) MINUTES, MAINTAIN (altitude).

Or

CLIMB/DESCEND TO REACH/LEAVE (altitude) IN (number) MINUTES OR LESS, MAINTAIN (altitude).

c. Specified altitude for crossing a specified fix or waypoint; or, specified altitude for crossing a distance (in miles) and direction from a specified fix or waypoint.

PHRASEOLOGY—

CROSS (fix, waypoint) AT (altitude).

CROSS (fix, waypoint) AT OR ABOVE/BELOW (altitude).

CROSS (number of miles) MILES (direction) OF (name of fix, waypoint) AT (altitude).

CROSS (number of miles) MILES (direction) OF (name of fix, waypoint) AT OR ABOVE/BELOW (altitude).

d. A specified altitude over a specified fix for that portion of a descent clearance where descent at pilot’s