

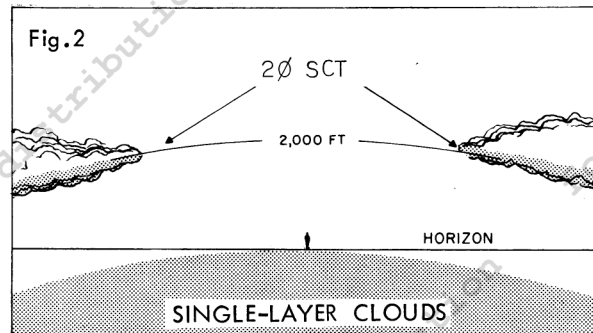
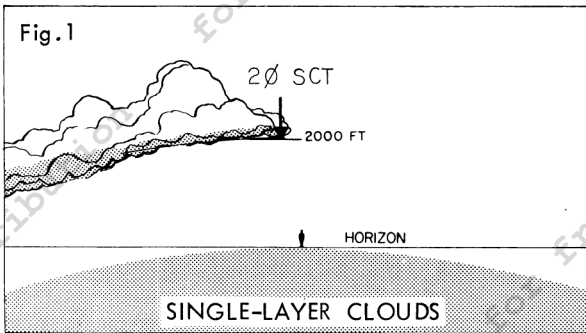
**DEPARTMENT OF TRANSPORTATION**  
**Federal Aviation Administration**  
**VFR PILOT EXAM-O-GRAM NO. 52**

SKY COVER AND CEILING

A frequently misunderstood portion of the Aviation Weather Report is that part which contains SKY COVER and CEILING information. Do you thoroughly understand the following? TXK 3 $\emptyset$  SCT E5 $\emptyset$  BKN 1 $\emptyset\emptyset$  OVC...

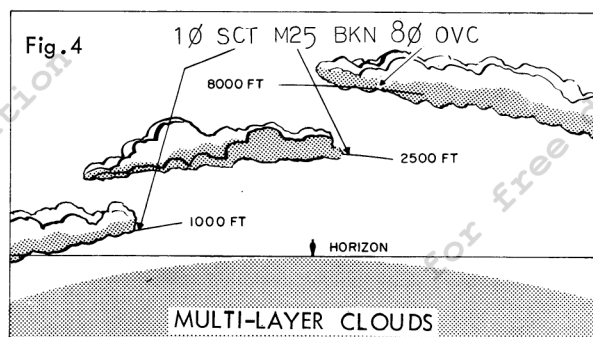
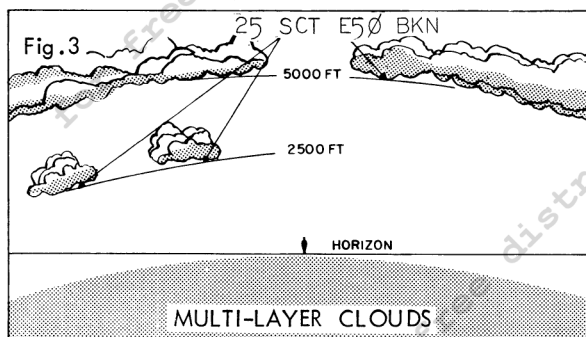
The "E5 $\emptyset$  BKN" in the report indicates that the weather observer at TXK estimated the ceiling (broken clouds) to be 5,000 feet above the surface. Although an estimated ceiling is the least reliable of all ceiling reports, it is based on specific guides and is reasonably accurate and operationally useful. If you understand the methods used in making weather observations, you are likely to make better use of available weather reports.

HOW IS SKY COVER DETERMINED? The observer estimates the amount of the total sky that is covered by clouds or obscuring phenomena, and reports this amount of cover in tenths. Two examples of a sky condition which the weather observer would consider as scattered (one-tenth to five-tenths coverage) are shown in figures 1 and 2.



Scattered clouds tend to be of little concern to many pilots. However, the reported scattered clouds could change to either "overcast" or "clear" after the observation was made. Increasing cloud cover, headwinds, dwindling fuel supply, and deteriorating weather could cause problems for the non-instrument rated pilot planning (on the basis of the report) to descend between scattered clouds. Remember, the Aviation Weather Report contains local weather only, at observation time, and is not to be considered a forecast. Your observation in flight is far more timely than a report that must be processed through the communication system. Therefore, when clouds are increasing, you must determine when the time has come to make your descent to avoid getting stranded on top.

The summation principle is applied when two or more cloud layers are present (see figures 3 and 4).



Cloud coverage of six- to nine-tenths of the sky is classified as broken---more than nine-tenths as overcast. However, a report of broken or overcast clouds at a specified height does not necessarily mean that the cloud layer at that altitude actually covers six- to nine-tenths or more than nine-tenths of the sky. The weather observer often does not know the actual extent of the higher cloud layers because his view is restricted by lower cloud layers. Therefore, he uses the summation principle in reporting the amount of sky covered by clouds. In this method, the observer adds the amount of sky covered by the lower clouds to the amount covered by clouds at higher levels. Thus, he reports the amount of sky covered by the combination of lower and higher clouds. A word of caution here--if the weather observer cannot see half or more of the sky above the base of a given cloud layer, most likely you cannot see half or more of the surface when flying above the base of that layer!

HOW IS CLOUD HEIGHT DETERMINED? By using specific guides, the trained observer usually arrives at reasonably accurate estimates (E). The ceiling designator (E) ESTIMATED CEILING--means heights are determined from pilot reports, balloons, or other measurements not meeting criteria for measured ceiling. The ceiling designator (M) MEASURED CEILING--heights determined by ceilometer, ceiling light, cloud detection radar, or by unobscured portion of a landmark protruding into ceiling layer. You should trust a report of "measured" ceiling more than one which is "estimated," although either in conjunction with visibility, determines whether VFR conditions exist.

The ceiling designator (W) is spoken as Indefinite Ceiling--vertical visibility into a surface based obstruction. Regardless of method of determination, vertical visibility is classified as an indefinite ceiling.

This Exam-O-Gram should be studied in conjunction with VFR Exam-O-Grams 20, 44, and 46. Together, they should help you understand that surface observations are spot reports; they may not provide the total enroute weather picture at flight time. You must also rely on forecasts and trends, radar weather reports, pilot reports, and your own timely observations in flight.

○ ○ ○ ○ ○

Exam-O-Grams are non-directive in nature and are issued solely as an information service to individuals interested in Airman Written Examinations.

- 2 -

VFR - No. 52  
6/76

FAA Aeronautical Center  
Flight Standards Technical Division  
Operations Branch  
P. O. Box 25082  
Oklahoma City, Oklahoma 73125

3/72

Exam-O-Grams available free of charge--single copy only per request. Permission is hereby granted to reproduce this material.