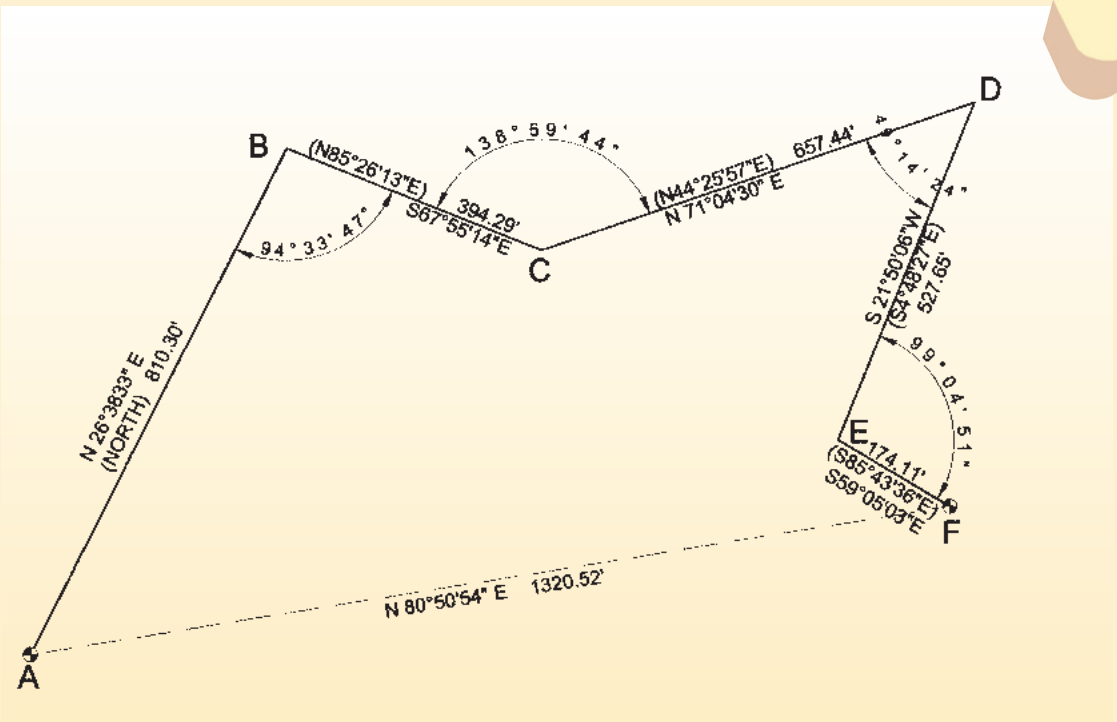
Solution to Problem 81



POINT	BEARING	DISTANCE	NORTH	EAST
A			1000.000	3000.000
	(NORTH)	810.30		
B'			(1810.300)	(3000.000)
	(N85°26'13"E)	394.29		
C'			(1841.668)	(3393.040)
	(N44°25'57"E)	657.44		
D'			(2311.130)	(3853.293)
	(S4°48'27"E)	527.65		
E'			(1785.336)	(3897.515)
	(S85°43'36"E)	174.11		
F'			(1772.363)	(4071.141)

INVERSING F' TO A YIELDS S 54°12'21" W 1320.56'

RECORD IS S 80°50'54" W 1320.52, A DIFFERENCE OF 26°38'33" AND 0.04'

ROTATING THE TRAVERSE 26°38'33" CLOCKWISE:

A			1000.000	3000.000
	N26°38'33"E	810.30		
B			1724.264	3363.357
	S67°55'14"E	394.29		
C			1576.053	3728.731
	N71°04'30"E	657.44		
D			1789.281	4350.632
	S21°50'06"W	527.65		
E			1299.485	4154.381
	S59°05'03"E	174.11		
F			1210.031	4303.754
	[S84°41'W 0.043' MISCLOSURE]		[1210.027]	[4303.711]

Since no related backsight bearing was used, just assume a bearing for line A-B, say, "North." Run the traverse with the assumed bearings (shown in parentheses. The resulting coordinates are also shown in parentheses). Inverse between "F" and "A" (The distance should be very close, as it is.) The difference between the inversed bearing and the known bearing is the amount the whole traverse needs to be rotated. Rotate the traverse and run it again to get corrected coordinates for "B" through "F. " (You decide whether or not to adjust this traverse. It closes within 0.04', or 1 part in almost 60,000).

Solution to Problem 82

Because of the equal sight distances, the elevation difference between “A” and “B” will be correct whether or not the level is in adjustment. The difference is 1.683', with “A” being higher.

When you move to “C” the elevation difference is still 1.683' so the reading on the rod at “A” should be 4.817' - 1.683' = 3.134',

If it isn’t, adjust the horizontal cross hair to intercept the rod at 3.134'. After adjustment recheck the reading at “B.” If it moved significantly repeat the cross hair adjustment.