

SQA - Navigation (Chief Mate) - Tue 5<sup>th</sup> July 2005 - 032-73 (NEW)

Q1 a) Ocean Passage route: - GC from Durban to 40°S 77°E  
 Thence along Parallel 40°S to 100°E  
 Thence GC to Melbourne.

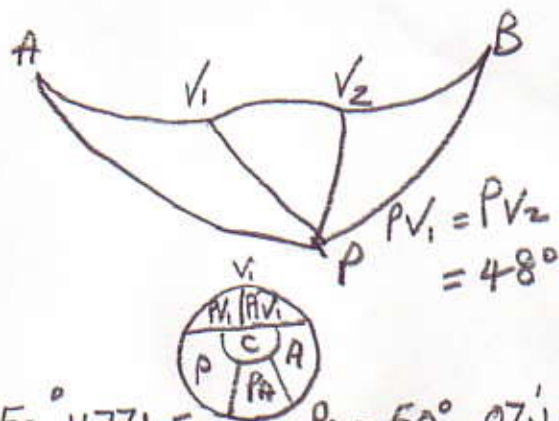
b) Shown on Gnomonic Chart: - Direct GC track

& c) Vertex 51°20'S 095°00'E

Composite GC track  
 $V_1$  42°S 083°00'E       $V_2$  42°S 119°00'E.

d) Calculation of Composite GC: -

A 30°00'S PA 60° 031° 30'E  
 B 39°00'S PB 51° 144° 00'E  
 Dlg 112° 30'E.



For Dlg  $\cos P_A = \frac{\tan P_{V_1}}{\tan P_A} = \frac{\tan 48}{\tan 60} \therefore P_A = 50.11771 E$        $P_A = 50^\circ 07.1 E$

$\cos P_B = \frac{\tan 48}{\tan 51} \therefore P_B = 25.92642 E$        $P_B = 25^\circ 55.6 E$

Dep = Dlg Cos hkt =  $2187.3 \times \cos 42^\circ = 1625.5 E$

$\cos AV_1 = \frac{\cos P_A}{\cos P_{V_1}} = \frac{\cos 60}{\cos 48} \therefore AV_1 = 41.64829 = 2498.9$

$\cos BV_2 = \frac{\cos P_B}{\cos P_{V_2}} = \frac{\cos 51}{\cos 48} \therefore BV_2 = 19.86353 = 1191.8$

Total 5316.2

+ 136

Pilot to Pilot 5452

	76° 02.7 E
Dlg ANB	112° 30.0 E
Parallel Dlg	36° 27.3 E
	(2187.3 E)

$\frac{5452}{15.8 \times 24} = 14d 09h 04m$

e) Depart Durban Pilot Dec 18d 06h 40m ST.

ST allowance Durban - 02h

Depart 18d 04h 40m GMT

5452' @ 15.8k = Steaming time 14d 09h 04m

January 01d 13h 44m GMT

ST allowance Melbourne + 10h

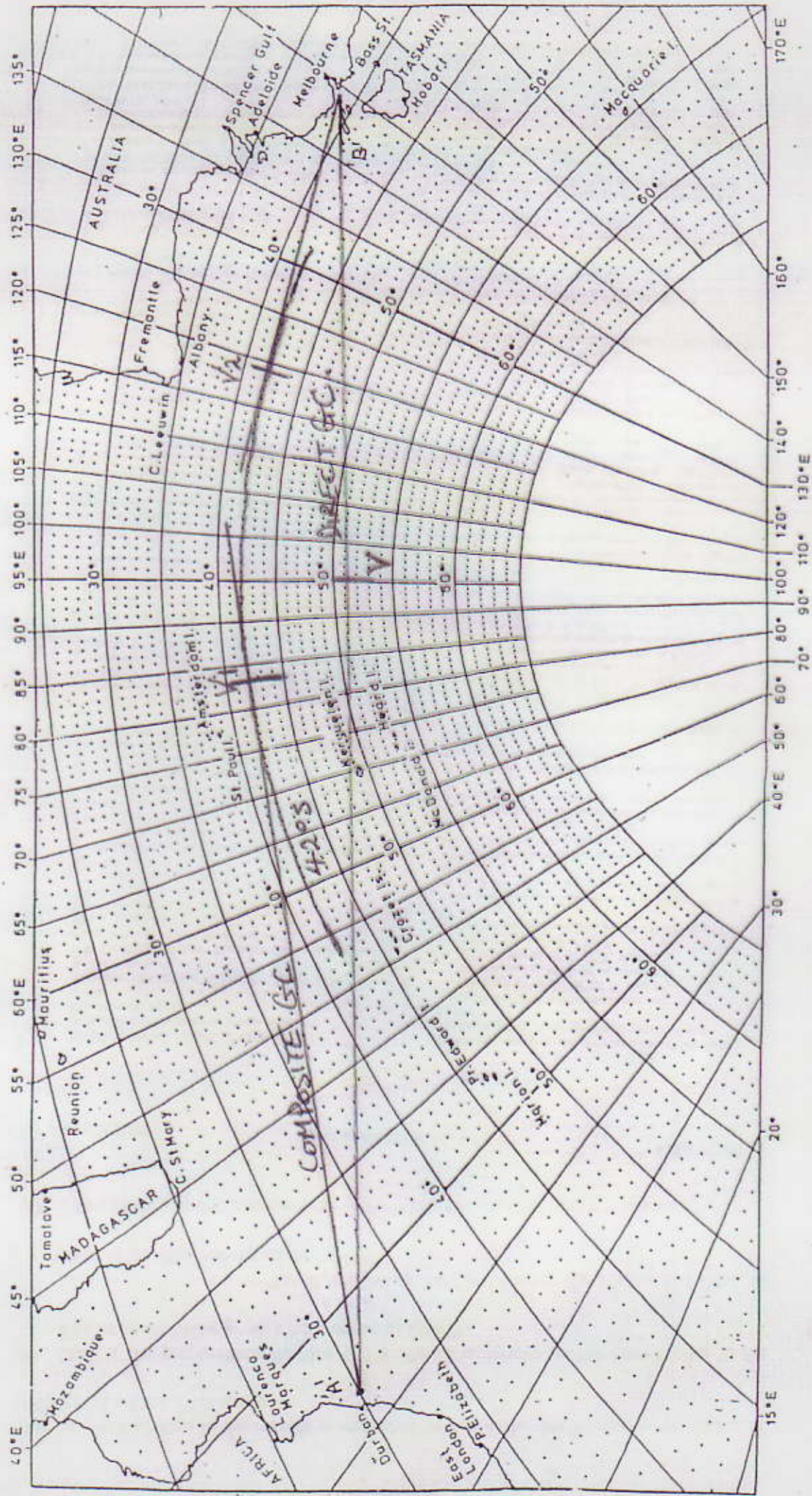
ETA Melbourne Pilot Jan 01d 23h 44m ST.

NOTE:-

Melbourne Summer Time may be kept.



Gnomonic Chartlet of South Indian Ocean



Candidate's Name .....

Examination Centre .....