– Convert the G/S ratio to Ground Speed. 1 on the inner scale opposite 230 on the outer scale, opposite 0.89 on the inner scale read off the G/S (204 Kt). TAS 230 Kt; W/V 000/40; Tr 055 (T) gives Hdg 047 (T). G/S 204 Kt and drift 8° Starboard.

4. TO FIND THE WIND VELOCITY.

From known G/S calculate G/S ratio *(see paragraph 31)*.

Rotate the girded disc until the HEADING INDEX is opposite the Heading direction on the outer compass rose. Read off opposite the known Track on the compass rose the drift on the drift scale.

Rotate the wind arm until the Wind Ration scale lies trough the intersection of the drift and G/S ratio on the grid. Read off the Wind Speed ratio at this intersection and the wind direction on the outer compass rose under the WIND DIRN line.

Convert the Wind Speed ratio into a Wind Speed *(see paragraph 31)*.

For example: Hdg 229 (T); TAS 555 Kt; Tr 239 (T); G/S 577 Kt. What is the W/V?

– Calculate G/S ratio. 1 on inner scale opposite 550 on outer scale, opposite 577 on outer scale read off G/S ratio (1.04). Rotate grided disc until HEADING INDEX is opposite 229 on outer compass rose. Opposite 239 on outer compass rose read off drift on drift scale (10° Starboard).
– Rotate the wind arm until the Wind Ratio scale lies through the intersection of 10° Starboard drift and the 1.04 G/S ratio on the grided disc. Read off Wind Speed ratio (0.18) under this intersection, and Wind Direction (130°) on the outer compass rose under the WIND DIRN line.
– Convert the Wind Speed ration to wind speed. 1 on inner scale opposite 555 on outer scale, opposite 0.18 on inner scale read off Wind Speed (100 Kt) on outer scale. Hdg 229(t); TAS 555 Kt; Tr 239 (T); G/S 577 Kt give W/V 130/100.

CRP- 6 WIND TRIANGLE PROBLEMS

The reverse side of the CRP-6 computer is arranged to solve the navigational triangle of velocities without the use of a slide. The principle is based upon *"similar triangles"*, the TAS being taken as unity (factor of 1) and the Wind and Ground Speeds are expressed as ratios of the TAS.

The large outer disc has a compass rose around its edge.

The smaller centre disc is grided in drift lines and G/S ratios, at the top it has a HEADING INDEX either side of which is a drift scale showing from 0° to 30° Port and Starboard drift. The wind arm is graduated in Wind Speed ratios and has an index for ease of use, there is a WIND DIRN line on one end to enable the wind direction to be set against the outer compass rose.

1. TO CONVERT SPEED(S) INTO RATIOS (r) OF TAS AND VICE-VERSA.

Use the circular slide rule side of the CRP-6 for these conversions.

– Set 1 on the inner scale opposite TAS on the outer scale.

(a) Opposite (s) on the outer scale read off (r) on the inner scale, (speed to ratio).

(b) Opposite (r) on the inner scale read off (s) on the outer scale, (ratio to speed).

For example: (a) TAS 214 Kt; W/V 30 Kt. Find Wind Speed ratio?

– Set 1 on inner scale opposite 214 on outer scale.
– Opposite 30 on outer scale read 14 on inner scale.
– TAS 214 Kt; Wind Speed 30 kt, Wind Speed Ratio = 0.14.

For example: (b) TAS 1040 Kt; G/S ratio 1.13. Find the G/S?

– Set 1 on inner scale opposite 1040 on outer scale.
– Opposite 1.13 on inner scale read 1175 on outer scale.
– TAS 1040 Kt G/S; ratio 1.13, G/S = 1175 Kt.

2. TO FIND TRACK AND GROUND SPEED.

Convert the Wind Speed to a Wind Speed ratio *(see paragraph 31)*.

Mark on wind arm the Wind Speed ratio.

Rotate the wind arm to set the WIND DIRN line over the wind direction on the outer compass rose. Holding the wind arm in place rotate the grided disc until the HEADING INDEX is opposite the Heading on the outer compass rose. Under the index on the wind arm read off the drift and G/S ratio. Opposite the drift on the drift scale read off the Track on the outer compass rose.

Convert the G/S ratio into a Ground Speed *(see paragraph 31)*.

For example: Hdg (T) 265; W/V 210/35; TAS 290 Kt. What is Tr and G/S?

- Calculate Wind Speed ratio. 1 on inner scale against 290 on outer scale, against 35 on outer scale read ratio (0.12) on inner scale.
- Set index on wind arm to 0.12.
- Rotate the wind arm until WIND DIRN line lies over 210° on outer compass rose. Holding wind arm in place rotate grided disc until HEADING INDEX points to 265° on outer compass rose. Under index on wind arm read off drift (6°S) and G/S ratio (0.93). Against 6° Starboard on drift scale read off Track on outer compass rose (271°).
- Convert G/S ratio to G/S 1 on inner scale against 290 on outer scale *(as for first stage above)*, against 0.93 on inner scale read off G/S on outer scale (271 Kt). Hdg (T) 265; W/V 210/35; TAS 290 Kt give Trk 271° (T) G/S 271 Kt.

3. TO FIND HEADING, GROUND SPEED & DRIFT

Convert the Wind Speed to a Wind Speed ratio (see paragraph 31).

Set index on wind arm to the Wind Speed ratio. Rotate the wind arm to set the WIND DIRN line over the wind direction on the outer compass rose. Holding the wind arm in place rotate the grided disc until the HEADING INDEX is opposite the Track direction on the outer compass rose. Under the index on the wind arm read off the drift. Further rotate the grided scale until this drift on the drift scale is now opposite the Track direction on the outer compass rose.

Check the drift now under the index on the wind arm, as stage 6 above may have caused a change.

(a) if it is not the same as the drift opposite the Track direction on the outer compass rose, repeat the process from stage 6, using the drift now under the index.

(b) if it is the same as the drift opposite the Track direction on the outer compass rose the computer is correctly set up. Read off Heading opposite the HEADING INDEX and the drift and G/S ratio under the index on the wind arm. Convert the G/S ratio to a Ground Speed *(see paragraph 31)*.

For example: TAS 230 Kt; W/V 000/40; Tr 055(T); What is the Hdg (T); G/S and drift?

- Calculate the Wind Speed ratio. 1 on the inner scale opposite 230 on the outer scale, opposite 40 on the outer scale read ratio (0.174) on inner scale.
- Mark wind arm at 0.174 .174. Rotate wind arm until WIND DIRN line lies over 000 on the outer compass rose. Holding the wind arm in place rotate the grided disc until the HEADING INDEX is opposite 055 on the outer compass rose. Under Index on wind arm read off drift (9° Starboard). Rotate grided disc so that 9° Starboard on the drift scale is opposite 055 on the outer scale. Check drift now under index (8° Starboard). As it has changed from 9° to 8° Starboard rotate grided disc 1° to 8° Starboard opposite 055 on the outer scale.
- Check again, drift is still 8° Starboard and ties up with the 8° Starboard opposite the Track. Read off the Heading opposite the HEADING INDEX (0.47°) and the drift (8° Starboard) and G/S ratio (0.89) under the index on the wind arm.