(ii) $j=0$ and $\dim(\Lambda \cap V_{n-i+2}) \leq k-i+1$

$\Rightarrow$ $k-l \leq k-i+1$. $\Rightarrow$ $i-1 \leq l \leq i-0=i$

$\Rightarrow$ In case $l=i-1$, we have a contradiction.

In case $l=i$.

$$\begin{array}{l} \sigma_1 = \sigma_1 + \cdots \\ \sigma_2 = 0 + \sigma_2 \\ \vdots \\ \sigma_i = 0, + \cdots \quad + \sigma_i \\ \vdots \end{array}$$

$$\Rightarrow \iota(\alpha) = \left\langle \begin{array}{c|l} & \begin{matrix} & & & & i & & & \end{matrix} \\ & (1, 0 \cdots 0 \; * \cdots * ) \\ & (0, 1 \cdots 0 \; * \cdots * ) \\ & \vdots \\ i & (0, 0, \cdots 1, * \cdots * ) \\ i+1 & (0, 0 \cdots 0, * \cdots * ) \\ & \vdots \\ n & (0, 0 \cdots 0, * \cdots * ) \end{array} \right\rangle$$

$\Rightarrow$ $\dim(\Lambda \cap V_{n-i+2}) \geq k-l+2 = k-i+2$ $\Rightarrow$ Contradiction.

Thus from (i) & (ii), we have

$$\dim(\Lambda \cap V_{n-i+2}) \geq k-i+2.$$

Next suppose $\dim(\Lambda \cap V_{n-k+k-i+3}) = k-i+2$.

From the above we know that $\dim(\Lambda \cap V_{n-i+2}) \geq k-i+2$.

$$V_{n-i+3} = \{e_{i-2}, e_{i-1}, e_i, \cdots e_n\}$$

$$V_{n-i+2} = \{e_{i-1}, e_i, \cdots e_n\}.$$

$k-l \leq k-i+2$ by P361 ⊛ and $V_{n-i+3} \supset$ (**) on P361.

$\Rightarrow$ $l \geq i-2$.

① $l=i$, O.K by the above

② $l=i-1$, O.K again by the above.