$l \cap l_x \Rightarrow l \in \sigma(p) \Rightarrow \sigma(l_x) \subset \bigcup_{p \in l_x} \sigma(p).$

$\Rightarrow \sigma(l_x) = \bigcup_{p \in l_x} \sigma(p)$

$\forall l \in \sigma(l_x) \Rightarrow l \cap l_x \neq \phi \Rightarrow$ Let $h = \overline{l, l_x}$,
if $l \neq l_x$, choose a 2-plane $h \supset l_x$ if $l = l_x$.
$\Rightarrow \sigma(h) \ni l \Rightarrow \sigma(l_x) \subset \bigcup_{h \supset l_x} \sigma(h).$ --- ①

$\forall l \in \sigma(h)$, $h \supset l_x \Rightarrow l, l_x \subset h \Rightarrow l \cap l_x \neq \phi$
since h is a 2-plane. $\Rightarrow l \in \sigma(l_x) \Rightarrow \sigma(h) \subset \sigma(l_x)$.
$\Rightarrow \bigcup_{h \supset l_x} \sigma(h) \subset \sigma(l_x)$. --- ② $\Rightarrow$ By ① & ②, $\sigma(l_x) = \bigcup_{h \supset l_x} \sigma(h)$.

$G \cap \bigcap_{x \in L} T_x(G) = \bigcap_{x \in L} (G \cap T_x(G)) = \bigcap_{x \in L} \sigma(l_x)$

$\forall l \in \bigcap_{x \in L} \sigma(l_x)$

① $l \ni p_L = \bigcap_{x \in L} l_x. \Rightarrow$ O.K. since $l \in \sigma(p_L)$.

② $l \not\ni p_L \Rightarrow \forall x, l \cap l_x \neq \phi \Rightarrow \exists\ p_1 \neq p_2 \quad p_i \neq p_L$
s.t $p_1 = l \cap l_{x_1} \quad p_2 = l \cap l_{x_2}$. $\Rightarrow$ Since $p_1, p_2 \in h_L$,
$l = \overline{p_1, p_2} \subset h_L \Rightarrow l \in \sigma(h_L)$.
$\Rightarrow l \in \sigma(p_L) \cup \sigma(h_L) \Rightarrow \bigcap_{x \in L} \sigma(l_x) \subset \sigma(p_L) \cup \sigma(h_L)$.

① If $l \in \sigma(p_L)$, then $l_x \cap l \neq \phi$ for all $x \Rightarrow$
$l \in \bigcap_{x \in L} \sigma(l_x) \Rightarrow \sigma(p_L) \subset \bigcap_{x \in L} \sigma(l_x)$

② If $l \in \sigma(h_L)$, $l \cap l_x \neq \phi$ for all $l_x \subset h_L$,