Additive Manufacturing is one of the methods of modern (non-traditional) manufacturing. The fundamental of this method is based on adding materials layer by layer on top of each other. The purpose of this method is manufacturing the parts that cannot be manufactured by traditional machining process because of their geometrical complexity, disposing the limits of manufacturing. Nowadays Laser Sintering and Melting machines can rapidly manufacture the parts that cannot be manufactured by traditional machining process because of their geometrical complexity in many fields by using various metal powders. In this article, test specimens were manufactured via Selective Laser Sintering of Additive Manufacturing Method by using Ti6Al4V metal powder. Test specimens were manufactured via SLS method, different machining parameters as laser power, laser hatching speed, hatching distance and in various energy density values based on these parameters by their island and grid hatching strategies. After the grinding, polishing and etching processes of Ti6Al4V alloys that were manufactured with different machining parameters via SLS method, in their microstructural analysis, pore distribution and dimension, α/β phase transformation were examined. Besides, EDX elemental analysis was performed. The results were benchmarked. Findings were compared with the literature. Keywords: Additive Manufacturing, Selective Laser Sintering, Ti6al4v, Microstructure