Introduction - In the work (1) a general disjoint decomposition of semigroups was given, wich can be applied for the case of regular semigroups. The aim of the present paper is to obtain a characteristic decomposition of regular semigroups based on the decomposition studied in (1). We shall investigate the components of this decomposition and the interrelations between them.

By making use of the work (2) we study the cases of regular semigroups with or without left or right identity element.

Finally we make some special remarks.

Notations : For two sets   A, B   we write $A \subset B$ if   A   is a proper subset of   B.   By magnifying element we mean a left magnifying element.

§ 1.

Let   S   be a semigroup without nonzero annihilator. This is not a proper restriction because every semigroup can be reduced to this case.

Then   S   has the following disjoint decomposition:

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$$S = \bigcup_{i=o}^{5} S_i ,$$