Intramolecular criss-cross cycloaddition reaction of symmetrical homoallenylazines is a specific type of successive 1,3-dipolar cycloaddition reactions. New fused tetracyclic compounds 1 are formed in high yields in this reaction [1]. This type of the reaction was firstly observed at our Department [2,3]. When searched their chemical properties we found a new interesting behaviour of these compounds. In acidic conditions the criss-cross cycloadduct 1 rearranges to completely new structure of heterocyclic compound 2 with two six-membered and two five-membered rings. This new rearrangement was firstly monitored in the presence of reducing agent (NaBH₃CN). During the reaction one single bond between the two nitrogen atoms is broken and a new bond between carbon atoms in positions 2 and 7 is formed. The same rearrangement is observed when an electrophilic reagent instead of an acid is used. When reducing agent is not used the stable quaternary iminium salt 3 is isolated. This reaction proceeds very well when methyl iodide or benzyl iodide are used as electrophiles. Dry chloroform is usually used as a solvent to reduce amount of impurities. Compounds prepared by this type of rearrangement are very interesting because of their structure and easy preparation in high yields and purity.