

- 15 -

CLAIMS:

1. An aircraft engine system configured with a high pressure stage turbocharger assembly and a supplemental stage turbocharger assembly disposed in series with respect to said high pressure stage turbocharger, wherein the supplemental stage
5 turbocharger assembly provides a compressor unit of the high pressure stage turbocharger with substantially constant critical altitude pressure input.
2. An aircraft engine system according to claim 1, wherein the supplemental stage turbocharger assembly is added as a retrofit assembly to the aircraft engine, and where the supplemental stage turbocharger assembly is attached in series to said original
10 turbocharger assembly.
3. An aircraft engine system according to claim 1, wherein the supplemental stage turbocharger assembly can be a multistage supplemental turbocharger assembly and comprises two or more turbochargers, however disposed in series to one another.
4. An aircraft engine system according to claim 1, further comprising a control
15 system associated with the high pressure stage turbocharger assembly and being a closed-loop system, wherein it does not transfer or receive control signals from the supplemental stage turbocharger assembly.
5. An aircraft engine system according to claim 4, wherein the control system is configured for controlling pressure inlet to the engine from the compressor of the high
20 pressure stage turbocharger assembly.
6. An aircraft engine system according to claim 4, wherein the control system is configured for controlling a high pressure stage wastegate associated with the high pressure stage turbocharger assembly.
7. An aircraft engine system according to claim 1, wherein a supplemental
25 wastegate is associated with the supplemental stage turbocharger assembly, said supplemental wastegate is configured for assuring that a compressor of the supplemental stage turbocharger assembly generates pressure corresponding with that residing at the critical altitude.
8. An aircraft engine system according to claim 7, wherein the supplemental
30 wastegate is not connected with a control system of the high pressure stage turbocharger assembly.
9. An aircraft engine system according to claim 7, further comprising a supplemental control system configured at the supplemental stage turbocharger

- 16 -

assembly, for monitoring pressure outlet at a compressor of the supplemental stage turbocharger assembly, so as to generate a control signal to the supplemental wastegate.

10. An aircraft engine system according to claim 1, wherein the engine and the high pressure stage turbocharger assembly, as well as the control unit associated therewith,
5 remain substantially intact in spite of the addition of the supplemental stage turbocharger assembly.

11. An aircraft configured with an engine system configured with a high pressure stage turbocharger assembly and a supplemental stage turbocharger assembly disposed in series with respect to said high pressure stage turbocharger, wherein the supplemental
10 stage turbocharger assembly provides a compressor unit of the high pressure stage turbocharger with substantially constant critical altitude pressure input.

12. An aircraft according to claim 11, wherein the supplemental stage turbocharger assembly is added as a retrofit assembly to the aircraft engine, and where the supplemental stage turbocharger assembly is attached in series to said original
15 turbocharger assembly.

13. An aircraft according to claim 11, wherein the supplemental stage turbocharger assembly can be a multistage supplemental turbocharger assembly and comprises two or more turbochargers, however disposed in series to one another.

14. An aircraft according to claim 11, further comprising a control system
20 associated with the high pressure stage turbocharger assembly and being a closed-loop system, wherein it does not transfer or receive control signals from the supplemental stage turbocharger assembly.

15. An aircraft according to claim 14, wherein the control system is configured for controlling pressure inlet to the engine from the compressor of the high pressure stage
25 turbocharger assembly.

16. An aircraft according to claim 14, wherein the control system is configured for controlling a high pressure stage wastegate associated with the high pressure stage turbocharger assembly.

17. An aircraft according to claim 11, wherein a supplemental wastegate is
30 associated with the supplemental stage turbocharger assembly, said supplemental wastegate is configured for assuring that a compressor of the supplemental stage turbocharger assembly generates pressure corresponding with that residing at the critical altitude.

- 17 -

18. An aircraft according to claim 17, wherein the supplemental wastegate is not connected with a control system of the high pressure stage turbocharger assembly.

19. An aircraft according to claim 17, further comprising a supplemental control system configured at the supplemental stage turbocharger assembly, for monitoring
5 pressure outlet at a compressor of the supplemental stage turbocharger assembly, so as to generate a control signal to the supplemental wastegate.

20. An aircraft according to claim 11, wherein the engine and the high pressure stage turbocharger assembly, as well as the control unit associated therewith, remain substantially intact in-spite of the addition of the supplemental stage turbocharger
10 assembly.

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