

# **Chinese Civil Aviation Emissions and the Future Intention**

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# Chinese Civil Aviation and its Emissions

Chinese Government has been giving enough attention on Aviation Emissions.

China Reform and Development Committee, Meteorological Bureau, Energy Ministry, Environment Protection Bureau, Academy of Sciences...have held several meetings to discuss about the situation in China in the past years till now.



# Chinese Civil Aviation and its Emissions

- According to «the Chinese Civil Aviation Law» and «the People's Republic of China Regulations for Airworthiness of Civil Aircraft», the General Administration of Civil Aviation of China (CAAC) has been pointed as the authority which is responsible for the airworthiness and operations for all the civil aircraft including Noise and Emission.
- For the same reason, CAAC issued and revised in the past and recently for ourselves' Chinese Civil Aviation Regulations (CCAR) Part 34 and Part 36.

# Chinese Civil Aviation and its Emissions



- The General Policy of Chinese Government is: to decrease the emissions together with all countries in the world, but as a developing country take different responsibilities.

## Chinese Civil Aviation and its Emissions

- According to the “Kyoto Protocol”, it goes Industrialized Countries responsibilities to reduce the emissions.
- The Developing Countries may take different responsibilities in reducing emissions activities compare with Industrialized Countries.

## Chinese Civil Aviation and its Emissions

- The content of CCAR 34 is the same with that of Annex 16 II.
- That means the emission requirements of CCAR 34 is exactly equal to the effective requirements of ICAO present regulation.
- CAAC is ready to revise our CCAR 34 continuously, so long as there is any further revision or amendment for ICAO documentation or annex 16 in future.

# Chinese Civil Aviation and its Emissions

- The Chinese fleet has been keeping as the one of youngest or newest classes in the world.



# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
A300-600R	CF6-80C2A5	10	Y
	PW4158	6	Y
A300-600R 小计		<u>16</u>	Y
A319-100	CFM56-5B5/P	4	Y
	CFM56-5B6/P	29	Y
	CFM56-5B7/P	27	Y
	V2522-A5	7	Y
	V2524-A5	24	Y
	V2527M-A5	6	Y
A319-100 小计		<u>97</u>	Y
A320-200	CFM56-5B4/P	98	Y
	V2527-A5	44	Y
	V2527E-A5	5	Y
A320-200 小计		<u>147</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
A321-100	V2530-A5	2	Y
A321-100 小计		<u>2</u>	Y
A321-200	CFM56-5B3/P	6	Y
	V2533-A5	21	Y
A321-200 小计		<u>27</u>	Y
A330-200	Trent 772B-60	7	Y
	Trent 772C-60	6	Y
A330-200 小计		<u>13</u>	Y
A330-300	Trent 772B-60	7	Y
A330-300 小计		<u>7</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
A340-300	CFM56-5C4	11	Y
A340-300 小计		<u>11</u>	Y
A340-600	Trent 556-61	5	Y
A340-600 小计		<u>5</u>	Y
ATR72	PW127F	5	?
ATR72 小计		<u>5</u>	?
B737-300	CFM56-3-B1	26	Y
	CFM56-3C-1	106	Y
B737-300 小计		<u>132</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
B737-300F	CFM56-3-B1	2	Y
	CFM56-3B-2	3	Y
	CFM56-3C-1	7	Y
B737-300F 小计		<u>12</u>	Y
B737-300QC	CFM56-3-B1	1	Y
	CFM56-3B-2	3	Y
B737-300QC 小计		<u>4</u>	Y
B737-400	CFM56-3C-1	10	Y
B737-400 小计		<u>10</u>	Y
B737-500	CFM56-3C-1	10	Y
B737-500 小计		<u>10</u>	Y
B737-600	CFM56-7B22	6	Y
B737-600 小计		<u>6</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
B737-700	CFM56-7B20	6	Y
	CFM56-7B22	66	Y
	CFM56-7B24	39	Y
B737-700 小计		<u>111</u>	Y
B737-800	CFM56-7B24	17	Y
	CFM56-7B26	102	Y
	CFM56-7B27	15	Y
B737-800 小计		<u>134</u>	Y
B737-900	CFM56-7B26	5	Y
B737-900 小计		<u>5</u>	Y
B747-2J6B	JT9D-7R4G2	3	Y
B747-2J6B 小计		<u>3</u>	Y
B747-2J6F	JT9D-7R4G2	1	Y
B747-2J6F 小计		<u>1</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
B747-400	PW4056	12	Y
B747-400 小计		<u>12</u>	Y
B747-400F	CF6-80C2B5F	3	Y
	PW4056	3	Y
	PW4062A	2	Y
B747-400F 小计		<u>8</u>	Y
B747-400SF	PW4056	2	Y
B747-400SF 小计		<u>2</u>	Y
B757-200	PW2037	11	Y
	RB211-535E4-37	45	Y
B757-200 小计		<u>56</u>	Y
B757-200SF	PW2037	2	Y
B757-200SF 小计		<u>2</u>	Y
B767-200	JT9D-7R4E	3	Y
	PW4052	2	Y
B767-200 小计		<u>5</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
B767-300	PW4056	12	Y
	RB211-524H-36	3	Y
B767-300 小计		<u>15</u>	Y
B767-300ER	CF6-80C2-B6	1	Y
	PW4060	6	Y
	PW4062	2	Y
B767-300ER 小计		<u>9</u>	Y
B777-200	GE90-76B	9	Y
	GE90-90B	1	Y
	PW4077D	10	Y
B777-200 小计		<u>20</u>	Y
BAe146-100	ALF502R-5	2	N
BAe146-100 小计		<u>2</u>	N
BAe146-300	LF507-1H	7	N
BAe146-300 小计		<u>7</u>	N

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
CL-600-2B19	CF34-3B1	8	Y
CL-600-2B19 小计		<u>20</u>	Y
CL-600-2C10	CF34-8C1	2	Y
CL-600-2C10 小计		<u>2</u>	Y
Dornier328-300	PW306B	29	Y
Dornier328-300 小计		<u>29</u>	Y
EMB-145LR	AE 3007A1	18	Y
EMB-145LR 小计		<u>18</u>	Y
G-IV	Tay Mark 611-8	2	Y
G-IV 小计		<u>2</u>	Y
Learjet45	TFE731-20BR-1B	1	Y
Learjet45 小计		<u>1</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
MA60	PW-127J	4	?
MA60 小计		<u>4</u>	?
MD-11F	CF6-80C2-D1F	2	Y
	PW4460	6	Y
MD-11F 小计		<u>8</u>	Y
MD-82	JT8D-217A	22	Y
	JT8D-217C	4	Y
MD-82 小计		<u>26</u>	Y
MD-90	V2525-D5	22	Y
MD-90 小计		<u>22</u>	Y

# China transport aircraft engine status

Aircraft Type	Engine Type	Number	Y/N
Y7	WJ5A-1	3	N
Y7 小计		<u>3</u>	N
Y7-100	WJ5A-1	9	N
Y7-100 小计		<u>9</u>	N
Y7-200	PW-127J	2	N
Y7-200 小计		<u>2</u>	N
Y7C1	WJ5A-1	1	N
Y7C1 小计		<u>1</u>	N
Y8F100	WJ6	4	N
Y8F100 小计		<u>4</u>	N
Total Transport Aircraft		<b><u>1,047</u></b>	

## Chinese Civil Aviation and its Emissions

- By the end of 2006, CAAC recorded following statistics:
- 30.58 Billion ton kilometer total traffic;
- 160 million passengers;
- More than 1000 transport aircraft;
- 147 Certified Civil Airports;
- Because of 1.3 billion population and the booming economy, the continue increase will not be surprised in China at present.

## Chinese Civil Aviation and its Emissions

- In recent years, CAAC has been considering the environment issues when defining CNS/ATM systems, including the environment savings of new routes, terminal procedures and grand movements;
- CAAC has established Beijing, Shanghai and Guangzhou Area CNS/ATM Control Centers recently. In some airport, new runways have been constructed for saving waiting time;

## Chinese Civil Aviation and its Emissions

- In certain Chinese airports, we use RNP procedures to optimize approaching procedure for reducing flight time and emissions;
- Now we recognized clearly the importance of developing a simple and cost effective common methodology to assess and document environmental benefits to airspace and CNS/ATM planning initiatives;

## Chinese Civil Aviation and its Emissions

- CAAC would like to commit to a proactive approach by promoting the use of operational measures including slot allocations that can limit or reduce the environmental impact of aircraft engine emissions.

# TOP 5 PREFERABLE WAYS

1. Under the frame of ICAO, establishing more strict regulations, procedures and standards, taking common and differentiated actions to minimize the engine emissions through of the world. We believe, any unitary country or body take unilateral action may not be helpful for the reducing of emissions. We support global solution through ICAO to resolve aviation emissions' issue by improving engine technology instead of establishing quota, which will hinder aviation development of developing countries in particular.

# TOP 5 PREFERABLE WAYS

2. Encouraging manufacturers to develop new designing technologies for minimizing engine emissions in future.
3. Using ICAO Database System for the whole fleet of States to sift out engine types that produce more emissions, and preventing aircraft emission level from getting worse with maintenance.

# TOP 5 PREFERABLE WAYS

4. Suggest ICAO and encourage developed countries provide more trainings, guide documentations, or organize technical exchanges for environmental protection measurement (Noise and Emission), airspace and slot using, routes arrangement and flight procedure designing..., to support developing countries promoting our emission reducing level.

# TOP 5 PREFERABLE WAYS

5. China would like to take any action that may make “flight safety, enough margin for air transportation developing and less civil aviation emission”.

# Thanks!

