

Directory: military engines

Model

(Inc submodel) Max thrust dry Max thrust reheat Power max(SL) Weight Length Fan diameter Pressure ratio Notes/description
(lb) (lb) (shp) (kg) (m) (m)

cost will be borne by overseas participants. The UK already accounts for around half the total foreign involvement, but Italy, Netherlands, Norway, Canada, Denmark and Turkey are among those either signed or considering a place. The development timescale for the engine, formerly called the JSF119-611, calls for the first full engine to test in the last quarter of 2003, following a preliminary design review in mid-2002, and critical review 12 months later. The engine is scheduled to power the CTOL for the first time in early 2006, followed by mid-year on the first STOVL aircraft. The first CV aircraft is due to fly in early 2007 before initial service readiness is declared towards the end of that year. The F135 is based on the F119, which continues to perform well in flight tests of the Lockheed Martin/Boeing F-22. This programme, although behind schedule, received a boost with the recent US defence budget, as did the F-35. Funding

for the purchase of additional aircraft (23 up from 13), was covered under a \$5.3 billion increase. Business also continues to come in for the F100 family. In the F-15 market, P&W has been awarded follow-on orders from the USAF and Israeli air force, the latter ordering up to 61 F100-229 engines for delivery between 2005 and 2008. More than 600 -229 engines have now been delivered, including many for the F-16 market, of which P&W now claims a 65% share. P&W is preparing to supply F100-220Es to Italy as part of an F-16 leasing deal. In larger engine markets, the military derivative of the PW2000, the F117-100, continues to provide a solid income thanks to increasing production of the Boeing C-17. The USAF has been given the go-ahead for a second multi-year procurement of 60 aircraft. The engine has also entered service with the USAF on VIP C-32s.

F117 (PW2000)

| | | | | | | | | |
|-------------|--------|--------|---|-------|------|------|------|-------------------------------------|
| F117-100 | 40,500 | - | - | 3,223 | 3.73 | 2.15 | 28 | Turbofan. C-17, C-32 |
| F100 | | | | | | | | |
| F100-220 | 15,000 | 23,800 | - | 1,443 | 4.85 | 1.18 | 24.8 | Turbofan. F-16A/B, C/D, F-15, F-15E |
| F100-229 | 17,800 | 29,100 | - | 1,657 | 4.85 | 1.81 | 32 | Turbofan. F-15E, F-16C/D |
| F135 | | | | | | | | |
| F135 | 40,000 | - | - | - | - | - | - | Turbofan. Lockheed Martin F-35JSF |

PRATT & WHITNEY CANADA

After making dramatic new inroads into the business jet and civil helicopter markets during the late 1990s with more than 2,000 turboshafts operating in 90 countries, P&WC is making a concerted effort to broaden into the military market. It has formed a US-based small military engine business and hopes to use it as a base from which to push a 670kW version of the PW200, dubbed the PW209, at military and special forces aircraft requiring higher power. The company is searching for alternative platforms for the 2,235kW turboshaft and the 4,470kW PW150. Both are potential options for the US Marine Corps' Sikorsky CH-53X and US Army's Boeing CH-47X future helicopters. New applications continue to be

sought for the PT6 after the start of test flights of a PT6C-67D-powered re-engined Bell UH-1H Huey and the delivery of -67C engines to Jingdezhen Helicopters of China for the Z-10 medium helicopter. P&WC is also keen to find a place on future unmanned combat air vehicles, with its JT15D-5C small turboshafts chosen to power Northrop Grumman's X-47A Pegasus demonstrator and its PW308 offered for the follow-on X-47B. A version of the same engine has been identified by P&WC as a suitable candidate for the Fairchild A-10 re-engining proposal. The PW127J turboprop-powered MA40 and MA60 are being offered to China by Xian. The MA60 has been launched for commercial service.

PT6

| | | | | | | | | |
|--------------|---|---|-------|-----|------|------|-----|---|
| PT6A-27 | - | - | 681 | 149 | 1.57 | 0.48 | - | Turboprop. Pilatus PC-6 |
| PT6A-60A | - | - | 1,051 | 216 | 1.84 | 0.48 | 8.5 | Turboprop. Pilatus PC-9 and PZK Orlik |
| PT6C-67C/D | - | - | 1,940 | - | - | - | - | Turboshaft. Z-10 medium helicopter/re-engined Bell UH-1H Huey |
| PW209 | | | | | | | | |
| PW209 | - | - | 900 | - | - | - | - | Turboshaft |
| PW137 | | | | | | | | |
| PW137T/S | - | - | 3,300 | - | - | - | - | Turboshaft. Euromil Mi-38 |

PROGRESS

Plans are in hand to increase funding of the Antonov An-70 programme and its Zaporozhye-based Progress MKB self-funded D-27 contra-rotating propfan engine. Motor-Sich has committed to deliver seven of the engines during 2002. The first units, costing \$3.5 million apiece, were due to have arrived by the end of March at the Kiev Aviant plant where the first of five An-70s for the Ukrainian air force is being built. The engine factory is also set to deliver 10 AI-222 engines for the Yakovlev Yak-130 advanced trainer this year. Progress plans to develop a family of small tur-

bofans from the baseline AI-222-25, including a thrust-vectoring derivative dubbed the AI-222-UVT. The design bureau has also outlined two afterburning versions, including the AI-222-25F rated at 9,250lb thrust and a "medium afterburning" version called the -25KFK (short afterburning section). Progress's D-436 is also in the running to power the Ilyushin Il-214, a twin-engined tactical transport being developed jointly by Ilyushin (through IAPO) and India's Hindustan Aeronautics. Rivals include a derated PS-90A and a variant of the Rolls-Royce BR715.

D-27

| | | | | | | | | |
|----------------|--------|---|---|-------|-------|------|------|--|
| D-27 | - | - | - | 1,650 | 4.21 | 0.97 | 22 | Propfan. Antonov An-70 |
| D-436 | | | | | | | | |
| D-436 T1/TP/TM | 16,900 | - | - | 1,450 | 4.169 | 1.37 | 22.8 | Turbofan. Be-200, Ilyushin Il-214 |
| AI-25TL | | | | | | | | |
| AI-25TL | 3,815 | - | - | - | 3.358 | 0.6 | - | Turbofan. |
| AI-222 | 9,000 | - | - | - | - | - | - | Turbofan. Yakovlev Yak-130 |
| D-18T | | | | | | | | |
| D-18T | 51,600 | - | - | 4,100 | 5.4 | 2.33 | 25 | Turbofan. Antonov An-124, An-225; D-18TM powers An-218 |
| AI-20D | | | | | | | | |