Boeing 747-436, G-CIVB

AAIB Bulletin No: 11/2001	**Ref: EW/G2001/04/18**	**Category: 1.1**
Aircraft Type and Registration:	Boeing 747-436, G-CIVB	
No & Type of Engines:	4 Rolls-Royce RB211-524H turbofan engines	
Year of Manufacture:	1993	
Date & Time (UTC):	23 April 2001 at 0904 hrs	
Location:	London Heathrow Airport	
Type of Flight:	Public Transport	
Persons on Board:	Crew - 19	Passengers - 129
Injuries:	Crew - None	Passengers - None
Nature of Damage:	None	
Commander's Licence:	Airline Transport Pilots licence	
Commander's Age:	52 years	
Commander's Flying Experience:	15,700 hours (of which 3,433 were on type)	
	Last 90 days - Not Known	
	Last 28 days - Not Known	
Information Source:	Aircraft Accident Report Form submitted by the pilot	
	and Incident Investigation Report submitted by the Operator	

The aircraft was being pushed back from stand T4 at Terminal 4 by a Tow Bar Less (TBL) tug at the start of a scheduled passenger service to Delhi, India.

After a short delay to replace a faulty tug, the pushback commenced. ATC instructed the aircraft to push to face south to allow another aircraft to park on stand W2. This was communicated to the pushback crew who had already heard the clearance on the tug's radio. The pushback initially followed normal procedures which included starting the four engines. The pushback stopped with the aircraft abeam stands T6 and T7 when the flight crew and pushback crew agreed that clearance from the inbound aircraft was sufficient. As the pushback was longer than usual, the four engines

had stabilised before the aircraft came to a stop. The flight crew then completed the memory recall 'after start procedure'.

After the aircraft had stopped, the tug driver applied the handbrake and lowered the cradle before signalling for the aircraft brakes to be set to 'Park'. This was confirmed by the indicator light on the aircraft nose landing gear and a signal from the headset operator. The towbar was then disconnected and the tug was then reversed approximately 20 feet in order for the driver to shut the towing gate before driving the tug clear of the aircraft.

Once the aircraft brakes had been set, the flight crew actioned the 'After Start Checklist'. When the last item on this checklist ('Ground Crew Clearance') was read out, the handling pilot informed the ground crew, using non standard phraseology, that four good starts had been achieved and they would expect clearance 'on the left.' The headset operator replied that he would 'see them on the left'. The intention was for the ground crew to visually signal to the flight crew that both the tug and all personnel were clear of the aircraft prior to the aircraft moving off to taxi. However, a non-standard reply was given to the flight crew before the headset operator disconnected from the aircraft and shut the access panel.

The aircraft then started to move away before the tug had been moved clear of the front of the aircraft. When the aircraft started to move, the headset operator tried to open the access panel and reconnect the headset but was unable to do so as the aircraft was accelerating. The headset operator then ran forward to the right to signal to the flight crew. The tug driver attempted to move the tug before jumping clear and falling to the ground. He then stood up and ran to the left hand side to attract the flight crew's attention.

As the aircraft started to move forward, the flight crew felt a jolt and realised that they had collided with the tug vehicle. Simultaneously, they noticed the ground crew signalling to them. The brakes were applied and the aircraft's engines were shut down in situ.

A thorough investigation was carried out by the operator's Safety Services team, which identified the immediate cause of the incident as being the aircraft starting to taxi before the final visual clearance had been received from the headset operator. The investigation report indicated that both flight and ground crew had deviated from push back procedures and standard phraseology. The report also highlighted several shortcomings in the operator's stated push back procedures applicable to both ground crew and flight crew. The investigation made several internal safety recommendations to amend current procedures to prevent the recurrence of such an event.

The report highlighted the need for appropriately timed, clear, unambiguous verbal and visual messaging between the flight crew and the ground crew.