ACCESSION NUMBER : 260432
DATE OF OCCURRENCE : 9401
REPORTED BY : FLC; FLC; ;
PERSONS FUNCTIONS : FLC,PIC.CAPT; FLC,FO; TWR,LC;
FLIGHT CONDITIONS : VMC
REFERENCE FACILITY ID : MEM
FACILITY STATE : TN
FACILITY TYPE : TWR; ARPT;
FACILITY IDENTIFIER : MEM; MEM;
AIRCRAFT TYPE : WDB;
ANOMALY DESCRIPTIONS : LOSS OF ACFT CONTROL;
ANOMALY DETECTOR : COCKPIT/FLC;
ANOMALY RESOLUTION : NOT RESOLVED/INSUFFICIENT TIME;
ANOMALY CONSEQUENCES : ACFT DAMAGED;
NARRATIVE : WE INTERCEPTED FINAL ABOUT 5 MI OUTSIDE THE FINAL APCH FIX AND PROCEEDED TO FLY A NORMAL APCH USING THE FMS/ILS AND STANDARD ACR PROCS. AN APCH CHK WAS RE-ACCOMPLISHED TO IDENT THE RWY 36R LOC AND CONFIRM THE NEW MINIMUMS FOR THAT APCH. THE FO FLEW THE FCP PANEL UNTIL WE BROKE OUT OF THE WX AFTER XING THE FINAL APCH FIX. WE CHKED IN WITH MEM TWR AND WERE CLRED TO LAND ON 36R. AT ABOUT 500 FT AGL, THE COPLT DISCONNECTED THE AUTOPLT, AND BEGAN TO HAND-FLY THE ACFT, WITH THE AUTOTHROTTLES STILL CONNECTED. SINCE THE ACFT HAD BEEN FULLY CONFIGURED FOR LNDG EARLIER, THE AUTOPLT HAD IT TRIMMED UP AND I DID NOT DETECT MAJOR TRIM CHANGES BEING INPUT BY THE COPLT, NOR DID THE 'STABILIZER MOTION' ALERT SOUND AFTER THE AUTOPLT WAS DISCONNECTED. THE APCH WAS FLOWN ON COURSE AND GLIDE PATH. LATER ANALYSIS OF THE FLT DATA RECORDER DID NOT SHOW ANY DISCERNIBLE DIFFERENCE BTWN THE AUTOPLT AND COPLT FLYING. A WELL STABILIZED PWR ON APCH WAS FLOWN DOWN TO ABOUT 100 FT AGL. AS THE RWY THRESHOLD LIGHTS WERE PASSING UNDER THE NOSE, THE ACFT ENTERED INTO A SERIES OF ABRUPT AND VIOLENT ROLL EXCURSIONS WHICH I ESTIMATE TO BE IN THE RANGE OF 15-20 DEGS OF BANK. THERE WERE 3 OR 4 OF THESE ROLL REVERSALS, WHICH ENDED AS ABRUPTLY AS THEY BEGAN. AT THIS POINT, I WOULD ESTIMATE THE ACFT ALT AT ABOUT 15 FT, WITH THE NOSE SLIGHTLY HIGHER THAN NORMAL FLARE ATTITUDE. THE ACFT SEEMED TO HANG THERE FOR A SECOND, AND THEN THE NOSE CAME DOWN AND WE TOUCHED DOWN VERY HARD IN WHAT FELT LIKE A FLAT, 3- POINT TOUCHDOWN. THE NOSE ROSE UP IN THE AIR, AND THEN SETTLED BACK TO THE RWY. I TOOK CTL OF THE ACFT IMMEDIATELY AFTER TOUCHDOWN BECAUSE I ANTICIPATED BLOWN TIRES OR STEERING PROBS, BUT THERE WERE NONE. I SLOWED THE ACFT AND TAXIED TO THE RAMP. THE ENTIRE EPISODE -- VIOLENT ROLLS, ENDING OF THE ROLL MOTIONS PRIOR TO LNDG, AND THEN THE HARD LNDG LASTED ABOUT 3-4 SECONDS. IT SEEMED TO ME THAT ALL THIS STARTED AT ABOUT THE POINT WHERE A FLARE WOULD BE INITIATED. GIVEN THE SHORT, ABRUPT, AND VIOLENT NATURE OF THESE GYRATIONS I DIDN'T HAVE A CHANCE TO CALL FOR A GAR, MUCH LESS ASSUME CTL AND ACCOMPLISH ONE. LATER ANALYSIS OF THE FLT DATA RECORDER CONFIRMS MY RECOLLECTION OF THIS INCIDENT. THE DATA TRACE SHOWS ABRUPT AND RAPID ROLL EXCURSIONS WHICH END AS SUDDENLY AS THEY BEGIN, FOLLOWED BY A SECOND OR SO OF LEVEL FLT AND THEN A G-LOAD SPIKE WHICH OCCURS ON THE HARD TOUCHDOWN. GIVEN THE STABILIZED APCH FLOWN BY THE FO, I WOULD DISCOUNT THE PROBABILITY OF PLT INDUCED OSCILLATIONS, AT LEAST WITH THE BEGINNING OF THE ROLL EXCURSIONS. FURTHERMORE, THE SUDDEN ONSET AND TERMINATION OF THE ROLL MOTIONS TELLS ME THAT THE ROLL INPUTS OF THE FO WERE IN REACTION TO EXTERNAL FORCES AND SUCCEEDED IN DAMPING THEM OUT PRIOR TO TOUCHDOWN. THE TWR WINDS AT THE TIME WERE NORTHWESTERLY AT 7 KTS, LESS THAN RPTED ON ATIS. WE LANDED 1 MIN BEHIND AN LGT AND OUR LNDG GROSS WT WAS AT 429000 LBS, WELL BELOW THE MAX OF 471000 LBS FOR THE WDB. I WOULD SPECULATE THAT

77

THE UPWIND TIP VORTEX FROM THE LGT WOULD DRIFT OVER THE RWY THRESHOLD IN THAT AMOUNT OF TIME, WHICH WOULD CAUSE AT LEAST THE INITIAL ROLL MOTION AT PRECISELY THE TIME WHEN OUR ACFT WAS MOST VULNERABLE. SUPPLEMENTAL INFO FROM ACN 260383: WINDS WERE ATIS RPTED AT 290 DEGS AT 12 KTS. PARALLEL APCHS WERE IN PROGRESS. THE PROFILE AND PARAMETERS OF THE APCH WERE TEXTBOOK. THE AUTOPLT WAS DISCONNECTED ABOVE THE DECISION HT IN A TRIMMED STABLE CONDITION. IN THE AREA BELOW 100 FT RADAR ALT WE ENCOUNTERED TURB AND AN ATTENDANT ROLL TO THE R. CALLBACK CONVERSATION WITH RPTR REVEALED THE FOLLOWING INFO: THE CLOSEST PRECEDING ACFT WAS AN LGT WHO LANDED 3 MINS 50 SECONDS EARLIER. NO KNOWN HIGH PWR RUNUPS IN AREA. RPTR SAID THE ROLL DID NOT FEEL LIKE WAKE TURB -- ITS ONSET WAS SUDDEN WITHOUT THE SLIGHT RIPPLE THAT IS FELT MOMENTARILY BEFORE MOST WAKE TURB ENCOUNTERS. THE ACFT WAS LOADED AT THE MAX FORWARD CG LIMIT. THE YAW DAMPER HAD BEEN WORKED ON IN ANC AND THE FDR SHOWED SOME SORT OF UPPER RUDDER INPUT AT ABOUT THE TIME OF THE INCIDENT. FDR READOUT SHOWED THE MAX BANK WAS ABOUT 7.5 DEGS AND THE TOUCHDOWN WAS AT 700 FPM AND 2.8 G'S. A BULKHEAD IN THE NOSEWHEEL AREA WAS BUCKLED BUT NOT SO SERIOUSLY THAT ITS REPLACEMENT COULD NOT WAIT UNTIL THE NEXT C CHK. THE ACFT LANDED ON THE L MAIN GEAR FIRST, BOUNCED AND THEN LANDED FLAT ON ALL 3 GEAR SIMULTANEOUSLY.

MAKE-MODEL NAME : DC-10 UNSPEC;B727 UNSPEC
FAR PART NUMBER : 121;121
SYNOPSIS : WDB FREIGHTER EITHER ENCOUNTERED WAKE TURB OR A CTL ANOMALY CAUSED WING ROLL FOLLOWED BY A HARD LNDG.
REFERENCE FACILITY ID : MEM
FACILITY STATE : TN
AGL ALTITUDE : 0,0
AIRCRAFT INVOLVEMENT : ANOMALY;
AIRCRAFT TYPE : WDB;
CREW SIZE : 2;
WINGS, GEAR, SURFACE, ENGINE : LOW,RETRACT,LAND,TURBOJET;
NUMBER OF ENGINES : 3;
ADVANCED COCKPIT : DISPLAY,NAVCTL;
OPERATOR ORGANIZATION : ACR;
OPERATION : FRT;
FLIGHT PLAN TYPE : IFR;
FLIGHT PHASE : APCH,LNDG;
SPECIAL ROUTE : NON;
AIRCRAFT HANDLE : A1;
MAKE-MODEL NAME : DC-10 UNSPEC;B727 UNSPEC
MAKE-MODEL (ASRS) : 583.60;148.30
FAR PART NUMBER : 121;121