Australian Government
Australian Transport Safety Bureau

Aviation Notification Form

Notification Officer: Section 47F(1) **Phone:** 1800 011 034

All orange fields are Mandatory unless information is not available from Reporter

Reporters Name:	Section 47F(1)	**Role:**	SGT SA Police	**Employer**	SA Police
Report date:	17/07/2016	**Report time:**	1306	**Phone:**	Section 47F(1)

Registration:	VH-PLM	**Flight No:**	
Aircraft Type:	McDonald Hughes 500 b (eg. Boeing 737, Cessna 210)		
Occurrence type:	Crash (eg. Loss of separation, wheels up landing)	**Operation Type:**	Commercial (eg.charter pax, mustering, private)
Occurrence Date:	17/07/2016	**Occurrence Time:**	1132 ◉ Local ○ UTC
Occurrence location:	Flinders Ranges	**State:**	SA
Latitude/Longitude:	31 36 45.1 S	138 13 4.1 E	(Important for accidents away from aerodromes)
Aircraft Operator:	Section 47E(d)		

Injuries	Fatal	Serious	Minor	Nil
Crew		1		
Passengers		2		
Ground				

Damage description: Reported that craft is relatively intact

Description of occurrence and Additional Information: (Press ALT + ENTER for a new paragraph)

Report of Helicopter crash in the Flinders Rangers near Lake Torrens (Cotabena). Distress beacon activated.

Section 47F(1)

Helicopter was undertaking power line surveying work when suffering engine failure at low alitude. 3 people taken to Adelaide for treatment.

Section 47F(1)

Police reference number 653

Flt Recs Quarantined: ○ Yes ○ No **ELT Disabled** ○ Yes ○ No **Guard:** ○ Yes ○ No

Passed on:	Date	Time	Name		Date	Time	Name
COR:	########	1315	Section 47F(1)	**WebSMS:**			
Other:				**Other:**			

From: ATSB International Reporting
To: adrep@icao.int; NTSB USA National Transport Safety Authority
Cc: ATSB International Reporting
Subject: FINAL ACCIDENT 201601806 Fuel exhaustion and collision with terrain involving McDonnell Douglas Corporation 369, VH-PLY, 36 km NW Hawker, South Australia, 17 July 2016 [SEC=UNCLASSIFIED]
Date: Wednesday, 8 August 2018 8:31:53 AM
Attachments: 201601806 final report.pdf

Good morning,

Attached is the final investigation report for ATSB occurrence 201601806

Kind regards,

Section 47F(1)
Safety Reporting Officer
Australian Transport Safety Bureau

62 Northbourne Avenue
Canberra ACT 2601

P Section 47F(1) | E Section 47F(1) @atsb.gov.au

Australian Government
Australian Transport Safety Bureau

ICAO ADREP Occurrence Report - 201601806

State Reporting	Reporting Organisation	State File Number	Date Created	Report Status
Australia	Australia (ATSB)	201601806	8 August 2018	Data

Headline	Occurrence Class	Occurrence Category
ACCIDENT 201601806 Fuel exhaustion and collision with terrain involving McDonnell Douglas Corporation 369, VH-PLY, 36 km NW Hawker, South Australia, 17 July 2016	Accident	OTHR: Other

Local Date Time	UTC Date Time	State/Area Of Occurrence	Location	Latitude	Longitude
17 July 2016 10:39 AM CST	17 July 2016 1:39 AM UTC	Australia	Port Augusta Aerodrome, 25.30° M 107Km	-31.6075	138.2237

Narrative

On 17 July 2016, at about 1039 Central Standard Time, a McDonnell Douglas Corporation 369D helicopter, registered VH-PLY, experienced fuel exhaustion and a collision with terrain while performing powerline inspections 36 km north-west of Hawker, South Australia. There were three crew on board the helicopter. One pilot in the front left seat, one line-worker in the front right seat and one line-worker in the rear left seat. The three crew members were seriously injured and the helicopter was substantially damaged.

The ATSB found that ground staff mistakenly told the pilot that the aircraft had been refuelled and through distraction, omitted a crosscheck of the fuel quantity before flight. The pilot's monitoring of the fuel in-flight was based on anticipated endurance, which resulted in him not detecting a low fuel level.

The helicopter was operating with an auxiliary fuel tank system, which did not include a fuel quantity indicator. The Civil Aviation Safety Authority and Design Approval Holder provided responses to the ATSB, which indicated that a misunderstanding likely occurred during the design review and approval process. This resulted in the auxiliary fuel tank system approval migrating from the restricted category to the normal category without a fuel quantity indicator.

The ATSB also found the requirements for the development of fuel policy by operators were dispersed throughout the aviation legislation—14 legislative and three guidance material requirements were found—but they did not require the operator to publish procedures for determining fuel on board before and during flight for commercial operators of aircraft not greater than 5,700 kg maximum take-off weight.

Injury Totals

	Crew	Passenger	Other
Fatal	0	0	0
Serious	3	0	0
Minor	0	0	0
Nil	0	0	-

Occurrence Types

Operational - Fuel related - Exhaustion
Operational - Terrain Collisions - Collision with terrain

Findings

Finding Type	Safety Factor	Description
Contributing safety factor	Organisational influence - Regulatory influences	The Civil Aviation Safety Authority (CASA) accepted that the design advice for the auxiliary fuel tank complied with the relevant requirements of the United States Civil Air Regulation 6. This was within the context of a proposed restricted category approval to permit repositioning flights. However, the response from CASA was likely interpreted by the Design Approver to permit approval in the normal category, which resulted in the auxiliary fuel tank becoming a permanent fit without a fuel quantity indicator.
Contributing safety factor	Individual action - Aircraft operation action - Pre-flight inspecting	The pilot omitted to conduct a visual check of the auxiliary fuel tank contents before departure, which resulted in the helicopter departing with insufficient fuel for the planned flight.
Contributing safety factor	Individual action - Aircraft operation action - Monitoring and checking	During the flight, the pilot managed the helicopter endurance 'by the clock', which resulted in him not detecting a low fuel level.
Other safety factor	Risk control - Procedures	The current legislation does not require commercial operators of aircraft not greater than 5,700 kg maximum take-off weight to provide instructions and procedures for crosschecking the quantity of fuel on board before and/or during flight. This increases the risk that operators in this category will not implement effective fuel policies and training to prevent fuel exhaustion events.

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ICAO ADREP Occurrence Report - 201601806

Contributing safety factor	Individual action - Aircraft operation action - Monitoring and checking	While conducting powerline inspections the helicopter's fuel supply was exhausted, which resulted in a forced landing.

Safety Recommendations

No Safety Recommendations have been issued in relation to this accident

Mcdonnell Douglas Corp. - 369D, VH-PLY

Aircraft Identification

Manufacturer / Model	Country Of Registration	Registration Number	Year Of Manufacture	Serial Number
Mcdonnell Douglas Corp. - 369D	Australia	VH-PLY	1981	110887D

Aircraft Operation

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Operation Type	Operation Sub Type
Aerial Work	Survey / Photographic

Aircraft Description

Aircraft Type	Engine Type	Number Of Engines	Weight Category	Maximum Take Off Weight	Landing Gear Type
Helicopter	Turboshaft	1	0-2250 Kg (0-4960 Lbs)	1360kg	Skid

Engine Description

Engine Manufacturer	Engine Model
ROLLS ROYCE LTD	250-C20R2

Itinerary

Departed From	Destination	Phase Of Flight
Port Augusta SA	Port Augusta SA	Maneuvering/airwork

Person at Controls

Pilot Flying
Pilot in command

Pilot in command

Pilot Licence Category	Pilot Licence Type	Total Hours On All	Total Hours On Type	Total Hours On All Last 90 Days	Total Hours On Type Last 90 Days

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VH-PLY Injuries

	Crew	Passengers
Fatal	0	0
Serious	3	0
Minor	0	0
Nil	0	0

OA2016-01806 - Occurrence Details

Occurrence

Logged date	6/13/2021 12:28:37 AM			
Status	Approved for release			
Occurrence class	Accident			
Highest injury	Serious			
Occurrence date	7/17/2016			
Occurrence time	10:39 Cen. Standard Time			
Public summary	On 17 July 2016, at about 1039 Central Standard Time, a McDonnell Douglas Corporation 369D helicopter, registered VH-PLY, experienced fuel exhaustion and a collision with terrain while performing powerline inspections 36 km north-west of Hawker, South Australia. There were three crew on board the helicopter. One pilot in the front left seat, one line-worker in the front right seat and one line-worker in the rear left seat. The three crew members were seriously injured and the helicopter was substantially damaged. The ATSB found that ground staff mistakenly told the pilot that the aircraft had been refuelled and through distraction, omitted a crosscheck of the fuel quantity before flight. The pilot's monitoring of the fuel in-flight was based on anticipated endurance, which resulted in him not detecting a low fuel level. The helicopter was operating with an auxiliary fuel tank system, which did not include a fuel quantity indicator. The Civil Aviation Safety Authority and Design Approval Holder provided responses to the ATSB, which indicated that a misunderstanding likely occurred during the design review and approval process. This resulted in the auxiliary fuel tank system approval migrating from the restricted category to the normal category without a fuel quantity indicator. The ATSB also found the requirements for the development of fuel policy by operators were dispersed throughout the aviation legislation—14 legislative and three guidance material requirements were found—but they did not require the operator to publish procedures for determining fuel on board before and during flight for commercial operators of aircraft not greater than 5,700 kg maximum take-off weight.				
Property damage	Unknown			
Property damage details				
Worst accident outcome	Major accident			
Defence effectiveness	Not effective			
Risk rating	High (500)			
ERC justification				
TSI reportable	Immediately reportable			
Ground injuries	Fatal	Serious	Minor	Total
	0	0	0	0

Section 22

Location

Location	Port Augusta Aerodrome, 25.30° M 107Km
Latitude	-31.60750000
Longitude	138.22370000
State	SA
Country	Australia

Aircraft

Registration	VH-PLY
Type	Helicopter
Manufacturer	MCDONNELL DOUGLAS HELICOPTER COMPANY
Model	369D
Engine type	Turboshaft
Engine manufacturer	ROLLS ROYCE CORPORATION
Engine model	250-C20R2
Number of engines	1
Landing gear type	Skid
Fuel type	Kerosene
Year of manufacture	1981
Amateur built	
Maximum takeoff weight (kg)	1360
ELT Type	
ELT Fitted	No
ELT Activated	No

Airspace

Controlling agency	Aust Civil
ATS service type	Other
ATS position	Other
Airspace class	G
Airspace type	OCTA

Operation

Registration	VH-PLY

Section 47E(d)

Flight number	

Section 22

Related runway	
Phase of flight	Manoeuvering/airwork
PIC status	Employee
Pilot flying role	Pilot in command
Departure aerodrome	Port Augusta Aerodrome [YPAG]
Destination aerodrome	Port Augusta Aerodrome [YPAG]
Actual landing	
Aerodrome proximity	Off aerodrome > 10 km
Operation type	Aerial Work
Operation subtype	Survey / Photographic - (Aerial Work)
Activity group	General aviation / Recreational
Activity type	Aerial work
Activity subtype	Pipeline / powerline surveying
Flight rules	VFR
Flight conditions	VMC
Altitude type	AMSL (above mean sea level - ft)
Altitude	Exactly
Exact altitude	80
Other information	

Occurrence category

Registration	VH-PLY
Level 1	Operational || Operational
Level 2	Fuel related || Terrain collisions
Level 3	Exhaustion || Collision with terrain

Damage level and injuries

Registration	VH-PLY			
Injury level	**Fatal**	**Serious**	**Minor**	**Total**
Crew		3		3
Passengers				
Aircraft damage level	Substantial			
Post impact fire	No			
Damage description				

Weather and environment

Section 22

Cloud cover	Sky clear
Visibility (km)	
Light conditions	Daylight
Wind direction	SSE
Average wind speed (kts)	4
Cloud base (ft)	
Visibility reduced by	None
Turbulence conditions	Nil
Icing conditions	Nil
Precipitation type	Nil
Precipitation intensity	Nil
QNH	
Outside temperature	
Light and variable (windspeed)	No
Maximum wind speed (gust)	
Dew point	
CAVOK	
Effective cloud ceiling	
Weather phenomena	

Safety factor

Level 1	
Level 2	
Level 3	

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