Aviation Investigation Final Report

Location:	PERRY, Iowa	**Accident Number:**	MKC86LA084
Date & Time:	April 10, 1986, 14:05 Local	**Registration:**	N8178N
Aircraft:	PIPER PA-32R-301T	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

SHORTLY AFTER TAKEOFF THE PIC NOTICED A LOSS OF ENGINE PWR AND FLAMES ERUPTING FROM THE ENGINE COWLING. THE PIC EXECUTED A TURN BACK TO THE ARPT AS THICK BLACK SMOKE FILLED THE COCKPIT. THE PIC OPENED THE SIDE VENT WINDOW TO MAINTAIN SIGHT OF THE GROUND AND LANDED THE ACFT IN AN OPEN FIELD. THE PIC EXITED THE ACFT AND USED AND HAND HELD EXTINGUISHER TO COMBAT THE FLAMES BELCHING FM THE ENGINE COWLING. THE ENSUING FIRE SUBSTANTIALLY DAMAGED THE ACFT. INSPECTION OF THE FIRE AREA REVEALED AN EXHAUST V-CLAMP LOOSE AND A DISTORTED GASKET AT THE EXHAUST JOINTS. THIS ALLOWED BLOW-BY OF THE HOT EXHAUST GASES WHICH MELTED THE FUEL BOOST PUMP CONNECTION SPEWING RAW FUEL INTO THE HOT ENGINE COMPARTMENT. THE EXHAUST SYSTEM HAD BEEN REMOVED TO REWORK A CYLINDER AND RE-INSTALLED 6 HOURS PRIOR TO THIS FLT. THE GASKET WAS DISTORTED DURING THE RE-ASSEMBLY OF THE EXHAUST SYSTEM.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) EXHAUST SYSTEM,CLAMP - LOOSE
2. (C) MAINTENANCE,ALIGNMENT - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (F) EXHAUST SYSTEM,GASKET - DISTORTED
4. (F) MAINTENANCE,INSPECTION - INADEQUATE - OTHER MAINTENANCE PERSONNEL

Occurrence #2: FIRE
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
5. (F) FUEL SYSTEM,LINE FITTING - BURNED
6. (C) FUEL SYSTEM,LINE - FIRE

Occurrence #3: FORCED LANDING
Phase of Operation: MANEUVERING - TURN TO REVERSE DIRECTION

Factual Information

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	29,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	August 22, 1985
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	3546 hours (Total, all aircraft), 1505 hours (Total, this make and model), 3360 hours (Pilot In Command, all aircraft), 90 hours (Last 90 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N8178N
Model/Series:	PA-32R-301T PA-32R-301	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	8029072
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	April 1, 1986 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	4 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2407 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	TIO-540-S1AD
Registered Owner:	JERRY WOODKE	**Rated Power:**	300 Horsepower
Operator:	HAWKEYE EAGLE TRAILERS	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DSM ,957 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	13:51 Local	**Direction from Accident Site:**	140°
Lowest Cloud Condition:	Clear	**Visibility**	30 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots / 12 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	17°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	PERRY , IA (PRO)	**Type of Flight Plan Filed:**	None
Destination:	SCHALLER , IA (SLB)	**Type of Clearance:**	None
Departure Time:	14:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	In-flight
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	41.84056,-94.090736(est)

Administrative Information

Investigator In Charge (IIC):	Thorpe, Clint
Additional Participating Persons:	TOM WOOD; DES MOINES , ID
Original Publish Date:	
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=34156