



Quick Reference Handbook



DH-82A Tiger Moth

VH-JAU

Last revised: 14 July 2016

© 2016 Airborne Aviation Pty Ltd
www.airborne-aviation.com.au

THIS PAGE INTENTIONALLY LEFT BLANK

Contents

Aircraft Overview

General Information	1
Recency and Restrictions.....	1

Performance – Specifications

Summary of Aircraft Performance and Specifications	2
----------------------------------------------------------	---

Operating Limitations

Airspeeds	3
Power Plant	3
Fuel System	3
Tyre Pressures	4
Manoeuvres Permitted	4

Weight & Balance

Loading System	5
----------------------	---

Checklists

Normal Operations	6
Emergency Operations.....	12

Notes

Your Personal Notes	19
---------------------------	----

NOTICE

The information and figures contained in this booklet are to be used for general purposes only. This document is not a substitute for the approved aeroplane flight manual.

Report errors to webmaster@airborne-aviation.com.au

Aircraft Overview

The Tiger Moth is a single engine two-seater light biplane of wood, metal and fabric construction. They were built in the 1940's and predominantly used as a trainer.

Equipment and Features:

- Main wheel brakes (rear seat only)
- 12 volt electrical system & radio

Recency & Restrictions

Private Hire (at company discretion):

- DH-82A checkout.
- PPL with 50 hours Tailwheel, 10 hours on type

Dual training (at company discretion):

- No restrictions

Recency:

- Flown Tiger Moth in the last 45 days.

Cockpit Photo



Performance – Standard Specifications

SPEED:

At Sea Level 75-80 KTS

RATE OF CLIMB AT SEA LEVEL 500 FPM

SERVICE CEILING 12,000 FT

V-Speeds:

Vne (never exceed) 139 KIAS

STALL SPEED:

Power off, 827KG 40 KIAS

Power off, 802KG 39 KIAS

MAXIMUM WEIGHT:

Takeoff..... 1825 LBS (827 KG)

Landing 1825 LBS (827 KG)

STANDARD EMPTY WEIGHT 1203 LBS (546 KG)

Maximum permissible (normal) 1825 LBS (827 KG)

Maximum permissible (acrobatic) 1770 LBS (802 KG)

BAGGAGE ALLOWANCE 24 KG

FUEL CAPACITY MAIN TANK..... 86 Litres

FUEL CAPACITY AUXILIARY TANK 40 Litres

OIL CAPACITY 8 QTS

ENGINE: 130 BHP inverted 4 cylinder air cooled piston engine

PROPELLER: 72 IN laminated wood with leading edge brass strip

Operating Information

AIR SPEEDS - NORMAL OPERATIONS

Takeoff:

Lift Off 50 KIAS

Climb:

Normal sea level..... 58 KIAS

V-Speeds:

Vne (never exceed) 139 KIAS

Maximum Demonstrated Crosswind Velocity:

Takeoff or landing..... 10 KNOTS

Stall Speed:

Power off, 827KG 40 KIAS

Power off, 802KG 39 KIAS

POWER PLANT

Oil Type W100 / W120 (seasonal)

Oil Quantities:

Maximum 8 Quarts

Minimum 4 Quarts

FUEL SYSTEM

The fuel tank is installed between the centre section struts above and forward of the front cockpit. An outlet cock is fitted to the tank and is located on the lower port side of the tank. This cock can be operated manually from both cockpits by push-pull rods situated on the left hand side of the cockpit. From its position in the centre section, the tank supplies the fuel by gravity through the fuel cock to a filter on the left side of the front bulkhead and hence to the carburettor. Embodied in the fuel tank is a water and dirt trap to which is fitted a drain cock. The carburettor is fitted with a spring-loaded plunger which, when depressed, holds down the float and floods the carburettor for use before starting the engine. The fuel level in the tank is indicated by a float type of gauge situated to the rear of the tank and is visible from both cockpits.

Main Tank Capacity 86 litres / 22.8 US GAL

Auxiliary Tank Capacity 45 litres / 12 US GAL

Fuel Consumption per hour..... 35 litres / 9.2 US GAL

Approved Fuels (seasonal):

Option A..... 100LL Grade Aviation Fuel (Blue)

Option B..... 100 Grade Aviation Fuel (Green)

Option C (If approved, check with operator) MOGAS (RED)

TYRE PRESSURES

Main Wheels:

Operating on tarmac	25 PSI
Operating on grass	20 PSI

MANOEUVRES PERMITTED (FLIGHT MANUAL)

Pilots may only perform manoeuvres that have been specifically endorsed in their logbook. Manoeuvres are endorsed after all aspects of each manoeuvre have been demonstrated during dual training.

Certain advanced acrobatic manoeuvres such as tail slides, tumbles, and torque rolls are prohibited by company policy. Speak with your instructor if you would like further details.

Normal category:

Operations shall be limited to normal flying manoeuvres, but may include straight and steady stalls, and turns in which the angle of bank does not exceed 60°. All acrobatic manoeuvres, including spins, are prohibited.

Acrobatic Category:

No acrobatic manoeuvres are approved except for those listed below:

- Spins
- Inside Loops
- Slow rolls
- Barrel rolls
- Stall turns
- Half inside loop and roll out
- Half roll and dive out

and any combination of these.

WARNING

FLICK MANOEUVRES AND MANOEUVRES INVOLVING HIGH INVERTED LOADS ARE NOT PERMITTED. THE SLATS MUST BE LOCKED IN THE CLOSED POSITION BEFORE COMMENCING ACROBATICS. THE AUXILIARY FUEL TANK MUST BE EMPTY DURING ACROBATICS.

Weight and Balance

LOADING SYSTEM

Loading system not required.

Maximum allowable weight in baggage compartment is 24kg.

No baggage for aerobatic flight.

No baggage with 2 POB.

Aircraft to be flown solo from rear seat only.

Fuel Load	Maximum Pilot/Pax Weight	
	Aerobatic *	Normal
Full 62kg	N/A	214 kg
¾ 46kg	205 kg	230 kg
½** 31kg	220 kg	245 kg
* 15 min fuel burn required to be in aerobatic category at maximum specified weight.		
** Half fuel only permitted on 30 minute flights.		
Fuel Load	<input type="checkbox"/> Full Tank <input type="checkbox"/> ¾ Tank <input type="checkbox"/> ½ Tank	
Pilot Weight:	_____	kg
Passenger Weight:	_____	kg
TOTAL:	_____	kg

Checklists – Normal Operations

PREFLIGHT INSPECTION

Visually check the aeroplane for general condition during walk-around inspection. Aeroplane should be parked in a level ground attitude to ensure that fuel drain valves allow for accurate sampling. In cold weather, remove even small accumulations of frost, ice or snow from the aircraft.

WARNING

TREAT THE PROPELLER AS IF THE IGNITION SWITCH WERE ON. DO NOT STAND, NOR ALLOW ANYONE ELSE TO STAND, WITHIN THE ARC OF THE PROPELLER, SINCE A LOOSE OR BROKEN WIRE OR A COMPONENT MALFUNCTION COULD CAUSE THE PROPELLER TO ROTATE.

(1) NOSE

1. Magneto Switches OFF
2. Main Wheel Chocks IN
3. Covers REMOVE
4. Fuel CHECK QUANTITY
5. Engine Oil Dipstick/Filler Cap CHECK THEN SECURE, minimum HALF
6. Oil Filter SPIN 4 – 6 times
7. Engine CHECK for oil leaks, broken wires, loose exhaust, cracks, etc.
8. Propeller CHECK for nicks and security

(2) COCKPIT

1. Pitot Tube Cover REMOVE, check for blockage
2. Main Undercarriage CHECK for cracks on elbow joint etc.
3. Radio OFF
4. Fuel Shut-Off IN
5. Headset CHECK
6. Sick Bags CHECK
7. Baggage door CHECK and LOCK

(3) EMPENNAGE

1. Control Surfaces CHECK freedom of movement, cuts/holes, security
2. Control Cables CHECK fraying/tearing
3. Tailwheel CHECK general condition, security
4. Struts CHECK general condition, security

(4) RIGHT WINGS

1. Main Wheel Tyre CHECK proper inflation, general condition
2. Aileron CHECK freedom of movement, general condition, security
3. Wings CHECK cuts/holes, wire tension and security
4. StrutsCHECK security

(5) LEFT WINGS

1. Main Wheel Tyre CHECK proper inflation, general condition
2. Aileron CHECK freedom of movement, general condition, security
3. Wings CHECK cuts/holes, wire tension and security
4. StrutsCHECK security
5. Camera bracket SECURE

BEFORE STARTING ENGINE

1. Pre-flight Inspection COMPLETE
2. Aircraft Dispatch/Manifest COMPLETE/AUTHORISED
3. Running Sheet Figures COMPLETE
4. Maintenance Release CHECKED
5. Air Sickness Bags AVAILABLE
6. Passenger Briefing COMPLETE
7. Seatbelts ADJUST and LOCK
8. Elevator Trim FULLY AFT
9. ATIS/Clearance OBTAIN
 - a. Master Switch ON
 - b. Radio ON, set as required
 - c. ATIS/Clearance OBTAIN
10. Master Switch OFF

STARTING ENGINE

PILOT ACTIONS	GROUND CREW ACTIONS
	Passenger seat belt -- SECURE
Throttle -- SET	
	Prime -- UNTIL FUEL VENTS
	Chocks -- SECURE
	Doors/Locker/Cowls -- LOCKED <i>"Locked and chocked"</i>
Stick -- BACK	
Pilot's front magneto switch -- ON	
Toe Brakes -- APPLY <i>"Stick back, brakes on, throttle set, front switches on"</i>	Front magneto switches -- ON
When engine fires -- Magnetos BOTH	Propeller -- SWING
Throttle -- 800 - 1000 RPM Oil pressure -- CHECK, confirm rising Signal -- CHOCKS AWAY	Chocks -- REMOVE

2. Master Switch ON
3. Radio/intercom ON, set as required

TAXIING

1. BrakesCHECK
2. InstrumentsCHECK indications in correct sense
3. Stick.....AFT or as required due wind

BEFORE TAKEOFF

1. Nose.....INTO WIND
2. Seatbelts and Shoulder Harnesses..... CHECK SECURE
3. Doors CLOSED and LOCKED
4. Flight Controls FULL FREE and CORRECT movement
5. Slats.....RETRACTED and LOCKED
6. Flight Instruments CHECKED and SET
7. Fuel QuantityCHECK
8. Fuel Shut-off IN
9. Throttle.....1700 RPM or max attainable while on brakes if less
 - a. Magnetos CHECK. RPM drop should not exceed 150 RPM or 50 RPM differential between magnetos.
 - b. Magnetos BOTH
 - c. Engine InstrumentsCHECK
10. Throttle..... CHECK IDLE
11. Throttle.....800 - 1000 RPM
12. Throttle Friction Lock ADJUST
13. Elevator Trim..... SET FOR TAKE-OFF
14. Self Brief..... COMPLETE (Aborted take-off, engine failure, TEM)
15. BrakesRELEASE

HOLDING POINT CHECKS

1. Radio.....SET frequency, volume tested, clearance
2. Runway EntryCHECK confirm runway and approach path clear

TAKEOFF

1. Throttle.....FULL OPEN
2. InstrumentsCHECK take-off power, airspeed alive, oil pressure
3. Elevator ControlRAISE TAIL 35 KIAS **DO NOT OVER ROTATE!**
4. Lift-off 50 KIAS
5. Climb Speed 58 – 60 KIAS

WARNING

THE TOE BRAKES ARE NOT TO BE APPLIED DURING TAKE-OFFS AND LANDINGS. USE IS TO BE RESTRICTED TO TAXIING AND FINAL STAGES OF THE LANDING ROLL AT TAXI SPEED.

NORMAL CLIMB

1. Airspeed 58 – 60 KIAS
2. Throttle..... REDUCE POWER by 50 RPM (full power max. 5 mins)
3. InstrumentsCHECK

CRUISE

1. Power 1950 RPM (No more than 80% is recommended)
2. Elevator Trim..... ADJUST
3. InstrumentsCHECK

DESCENT

1. PowerAS DESIRED
2. InstrumentsCHECK

BEFORE LANDING

1. Brakes CHECK and OFF
2. Fuel..... ON, check quantity
3. InstrumentsCHECK
4. Switches Magnetos BOTH
5. Hatches & Harnesses SECURE and LOCKED

LANDING

1. Airspeed 58 KIAS
2. Trim ADJUST
3. PowerREDUCE TO IDLE as obstacles are cleared
4. Touchdown.....MAIN WHEELS FIRST
5. Stick..... FULLY AFT when tailwheel on the ground
6. Braking MINIMUM REQUIRED when at taxi speed

WARNING

THE TOE BRAKES ARE NOT TO BE APPLIED DURING TAKE-OFFS AND LANDINGS. USE IS TO BE RESTRICTED TO TAXIING AND FINAL STAGES OF THE LANDING ROLL AT TAXI SPEED.

AFTER LANDING

1. Elevator Trim FULLY AFT
2. Radio SET as required

SHUT DOWN/SECURING AEROPLANE

1. After Landing Checks CONFIRM COMPLETED
2. Throttle 800-1000 RPM
3. Magnetos CHECK L, R, then ON BOTH
4. Magnetos OFF
5. Throttle FULLY OPEN
6. Throttle CLOSED once propeller has stopped
7. Front Magnetos OFF
8. Master Switch OFF
9. Running Sheet Figures COMPLETE
10. Cockpit Interiors TIDY
11. Pitot Cover INSTALL
12. Propeller and Cockpit covers INSTALL
13. Engine bay, fuselage and leading edges CLEAN

Checklists – Emergency Procedures

INTRODUCTION

Emergencies caused by aeroplane or engine malfunctions are extremely rare if proper pre-flight inspections and maintenance are performed.

Should an emergency arise the basic guidelines described in this section and the approved flight manual should be considered and applied as necessary to correct the problem.

Procedures in this section shown in **bold faced** type are immediate action items that should be committed to memory.

AIRSPEEDS FOR EMERGENCY OPERATION

Maximum Glide 58 KIAS

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF ROLL

1. **Throttle** **IDLE**
2. **Stick** **FULLY AFT when tailwheel on the ground**
3. **Brakes** **APPLY**
4. Ignition Switches OFF
5. Fuel Shut-off OFF (Pull full out)

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. **Airspeed** **58 KIAS**
2. **Land** **STRAIGHT AHEAD**
3. **Brakes** **APPLY**
4. Ignition Switches OFF
5. Fuel Shut-off OFF (Pull full out)

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

1. **Airspeed** **58 KIAS**
2. Seat Belts SECURE
3. Ignition Switches..... OFF
4. Fuel Shut-offOFF (Pull full out)
5. Doors UNLATCH
6. Land 3 POINTER
7. Stick..... FULLY AFT when tailwheel on the ground
8. BrakesAPPLY

PRECAUTIONARY LANDING WITH ENGINE POWER

1. Airspeed 60 KIAS
2. Seat Belts SECURE
3. Selected Field OVERFLY noting terrain and obstructions
4. Radios/Intercom OFF
5. Master Switch OFF
6. Doors UNLATCH
7. Land 3 POINTER
8. Stick..... FULLY AFT when tailwheel on the ground
9. BrakesAPPLY

DITCHING

1. Radio MAYDAY on 121.5 or appropriate frequency
2. Seat Belts SECURE
3. Power Establish 300'/min descent at 58 KIAS
4. Approach
 - a. High winds, heavy seas INTO WIND
 - b. Light winds, heavy swells PARALLEL TO SWELLS
5. Doors UNLATCH
6. Touchdown..... LEVEL ATTITUDE at established rate of descent
7. Face CUSHION at touchdown with folded coat
8. Aeroplane..... EVACUATE
9. ELT..... ACTIVATE
10. Life Vests INFLATE when clear of aeroplane

FIRES

DURING START ON GROUND

1. **Ignition Switches** **OFF**
2. **Fuel Shut-off** **OFF (Pull full out)**
3. **Pilot and Passenger**..... **EVACUATE**
4. Groundcrew ASSIST EVACUATION
5. FireEXTINGUISH using fire extinguisher, wool blanket or dirt

ENGINE FIRE IN FLIGHT

1. **Fuel Shut-off** **OFF (Pull full out)**
2. Airspeed 100 KIAS or airspeed within limitations which will provide an incombustible mixture
3. Forced LandingEXECUTE as described above

LANDING WITH A FLAT MAIN TYRE

1. Approach NORMAL
2. Touchdown..... GOOD MAIN TYRE FIRST, hold aeroplane off flat tyre as long as possible with aileron

PASSENGER BRIEFINGS

It is important to brief your passengers thoroughly prior to flight, and also keep passengers updated during the flight. Included are some suggestions for items to be included in your briefs.

PRIOR TO GOING AIRSIDE

- Passengers should stay with you while airside for security and safety.
- No smoking anywhere while airside or in the aircraft.
- Stay away from other aircraft and be alert to hazards.
- Overview of flight and expected flying conditions.
- Does anybody require the toilet before we take-off?

ON THE GROUND

- Don't scare your passengers by talking about engine failures, fires, or similar – simply ensure they are told to follow your instructions and know how to operate the doors and/or emergency exits.
- Adjustment of seat belts and seat position.
- Location of sick bags.
- An intercom is provided so passengers can easily communicate.
- Passengers to minimise chat when radio is busy, or as requested.
- Front seat passenger should be encouraged to point out any aircraft spotted that might be of conflict – another set of eyes is always useful.
- Front seat passenger briefed on not interfering with controls.
- If any passengers have any concerns during the flight they should be encouraged to raise them.
- Be sure to ask your passengers if they have any questions.
- Encourage passengers to read the self-briefing cards if available.

IN FLIGHT

- A running commentary of sights that can be seen, locations flown over and how the flight is progressing can be useful.
- Update your passengers about any change of plans.
- Check on the status of your passengers regularly.

Should a situation arise in flight you should remain calm. Communicate clearly and confidently the situation and your intentions to passengers.

SELF BRIEFING - DEPARTURE

A takeoff briefing should clearly state your plan-of-action for both when everything goes as planned and when they do not!

"He who fails to plan, plans to fail!"

You should brief yourself on the following points:

- How you plan on taking off and departing the aerodrome.
- Consider any threats relevant to the departure and manage them.
- Reasons for an aborted takeoff and how to execute it.
- Dealing with an engine failure with runway remaining.
- Dealing with an engine failure at low level with no runway remaining.

SELF BRIEFING - ARRIVAL

The arrival is the single most demanding phase of flight, and the one that carries the highest risk. As with a departure briefing, a thorough self brief on arrival is the key to a smooth and arrival.

You should brief yourself on the following points:

- How you plan on conducting your approach to the aerodrome, and what clearance or joining procedure you anticipate based on ATIS / AWIS.
Example: Join upwind for RWY 06 at 1,800ft descending on upwind to 1,300ft.
- Any NOTAMS relevant to your approach and landing.
Example: RWY 10/28 closed due soft wet surface.
- Consider any threats relevant to the arrival and manage them.
Example: Particularly strong crosswind and in-to-wind runway not available.
 - Revise crosswind procedure, be go-around minded if unstable.
 - Consider diversion if necessary.
- The type of approach and landing you plan on making.
Example: Reduced flap setting due to strong winds, final speed 65-75kts.
- If needing to go-around, the actions required to execute the procedure.
Example: Full power, raise nose, establish positive climb, flaps up slowly, communicate with ATC or other aircraft.

THREAT AND ERROR MANAGEMENT

TEM is an approach to flying that seeks to equip the pilot with the skills to recognise and counter everyday problems which, if ignored, could result in accidents or incidents.

Not all threats can be anticipated, it is unrealistic to make contingency plans to try to cover unexpected events. Experience shows that many threats can be anticipated, the first step is to identify likely threats. Once a threat has been identified, it must be managed.

If you identify a threat that cannot be managed you should not go flying!

Example Threat	Management
<i>High number of aircraft operating at aerodrome</i>	<i>Extra vigilance of traffic in the circuit through visual means and radio monitoring.</i>
<i>Tower closed, CTAF procedures in operation</i>	<i>Without additional safety of tower protection maintain an enhanced lookout and radio monitoring.</i>
<i>Short Runway</i>	<i>Ensure correct short field take-off or landing procedures are used and that performance has been confirmed.</i>
<i>Terrain or obstacles</i>	<i>Maintain enhanced situational awareness, also modify departure or arrival as appropriate.</i>
<i>Landing in to setting sun</i>	<i>Use another runway if possible. Wear sunglasses and be go-around minded if unhappy with any aspect of the approach.</i>
<i>Adverse Weather ie. Crosswind on landing</i>	<i>Ensure correct crosswind procedures are adopted and you are up to the task (aircraft and/or crosswind recency). Be go-around minded if the approach or landing becomes unstable. Request an alternate runway if operationally required or preferred.</i>
<i>Your recency</i>	<i>Study aircraft procedures prior to flight and take extra time to perform checks and monitor your own performance, or take a safety pilot.</i>
<i>Aircraft status ie. COM1 distorted / unreadable</i>	<i>Utilise COM2 for primary communications if available, otherwise divert or abort flight after troubleshooting.</i>
<i>NOTAMS</i>	<i>Familiarise yourself with changes to regular procedures and include in departure or arrival briefs.</i>

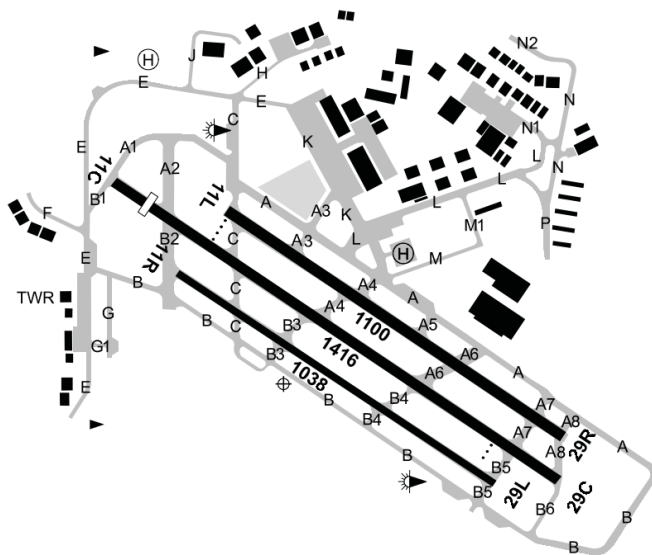
ERROR MANAGEMENT

The TEM model accepts that it is unavoidable that pilots, as human beings, will make errors. While errors may be inevitable, safety of flight requires that errors that occur are identified and managed before flight safety margins are compromised.

Identification of errors requires aircraft/systems/procedure knowledge and situational awareness. Analyse your own performance and identify errors before they lead to an undesired aircraft state or more serious error.

USEFUL INFORMATION

Location	Frequency	
Camden	Tower / CTAF(R)	120.1
	Ground	121.9
	ATIS / AWIS	125.1
Training Area	Sydney Radar	124.55
Bankstown <i>Preferred diversion airport</i>	Tower / CTAF(R)	132.8
	Ground	119.9
	ATIS / AWIS	120.9
	NDB	416
Wedderburn	CTAF	122.55
The Oaks	CTAF	126.7
Airborne Aviation	Airborne Base	119.2
	Phone	(02) 4655 7200



SYDNEY/Bankstown (YSBK)

