

# CHECKLIST

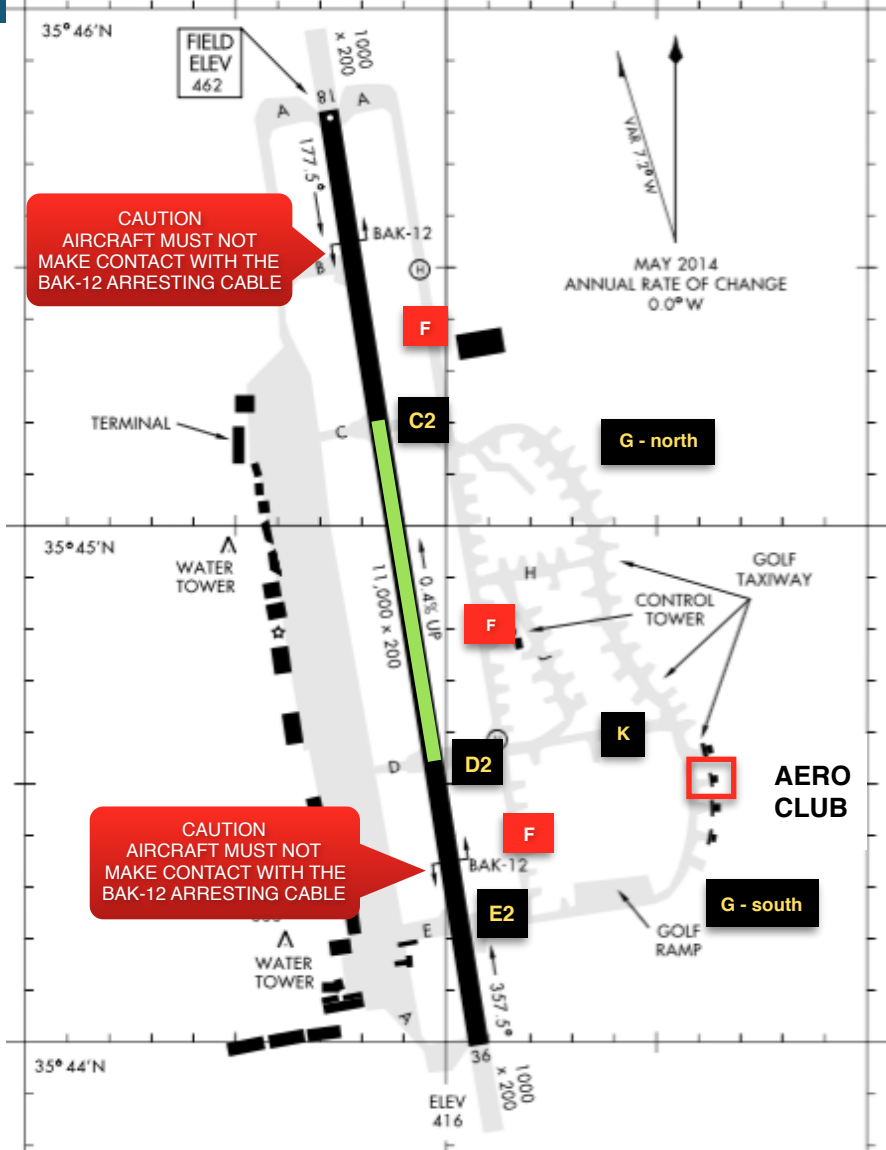


## For use with Yokota FTC aircraft only

N1840V (C172M)	_____	Cessna 172M	(1972)
N22905 (C172M)	_____	Cessna 172M	(1972)
N4972R (T41)	_____	Cessna 172H	(1967)
N5241F (T41)	_____	Cessna 172F	(1965)

**JANUARY 2019**

# C172M & T41 CHECKLIST



**CAUTION  
AIRCRAFT MUST NOT  
MAKE CONTACT WITH THE  
BAK-12 ARRESTING CABLE**

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AIRCRAFT MUST NOT  
MAKE CONTACT WITH THE  
BAK-12 ARRESTING CABLE**

	36	18
<b>C2</b>	3,700 ft	7,300 ft
<b>D2</b>	7,650 ft	3,350 ft
<b>E2</b>	9,650 ft	1,350 ft
Practice zone 3,000 ft x 60 ft		

**CROSS APPROACH &  
DEPARTURE ENDS OF  
RUNWAY AT OR ABOVE  
800 ft. MSL UNLESS  
OTHERWISE ADVISED**

**CABIN CHECK**

Safety equipment.....CHECK  
 HOBBS .....VERIFY  
 A.R.R.O.W documents .....VERIFY  
 Gust lock .....REMOVE  
 Throttle lock.....REMOVE  
 MAG & EIS switches..... VERIFY OFF  
 | Master Switch ..... ON  
 | Aux fuel transfer switch(es).. TEST/OFF  
 | Fuel gauges..... CHECK  
 | Flaps .....EXTEND  
 | Pitot heat (IFR).....CHECK  
 | Lights (external/cabin).....CHECK  
 | Light & pitot heat switches..... OFF  
 | Master Switch .....OFF  
 Fuel selector valve ..... BOTH  
 CO detector .....TEST  
 Baggage .....STOWED/SECURE

**EMPENNAGE**

Baggage door .....CLOSED & SECURE  
 Autopilot static port (left side) ..... CHECK  
 Elevator (left/right) & trim tab ..... CHECK  
 Rudder ..... CHECK  
 Control cables..... CHECK  
 VOR antennas..... CHECK  
 Tail tie-down.....REMOVE  
 Autopilot static port (right side)..... CHECK  
 Antennas ..... CHECK  
 (C172M) Aux fuel tank.....FUEL SAMPLE

**RIGHT WING**

Flap.....CHECK  
 Aileron.....CHECK  
 Wing tip.....CHECK  
 Leading edge & strut..... CHECK  
 Tie-down .....REMOVE  
 Main gear.....CHECK  
 Chock .....STOWED  
 Fuel tank sump.....SAMPLE  
 Fuel quantity.....CHECK/DIPSTICK  
 Fuel cap .....SECURE  
 (T41) Aux fuel tank.....CHECK/SAMPLE

**FUSELAGE**

Temp probe cover .....REMOVE  
 Windshield.....CLEAN & SECURE  
 Engine Oil (6~8 QTS.).....CHECK  
 Fuel strainer.....FUEL SAMPLE  
 Oil access panel .....CLOSED  
 Engine inlets.....CHECK  
 Propeller & spinner .....CHECK  
 Air filter .....CHECK  
 Nose gear/strut (> 2").....CHECK  
 Nose gear "do not tow" flag .....STOW  
 Static port.....CHECK

**LEFT WING**

Fuel tank sump .....FUEL SAMPLE  
 Fuel quantity.....CHECK/DIPSTICK  
 Fuel cap .....SECURE  
 Main gear.....CHECK  
 Chock .....STOWED  
 Tie-down .....REMOVE  
 Pitot tube cover.....STOWED  
 Pitot tube.....CHECK  
 Fuel tank vent.....CHECK  
 Leading edge & strut.....CHECK  
 Wing tip.....CHECK  
 Aileron.....CHECK  
 Flap.....CHECK  
 (T41) Aux fuel tank .....CHECK/SAMPLE

**PERFORM FINAL OVERALL CHECK****ARROW DOCUMENTS**

- Airworthiness Certificate
- Radio Operator's License
- Registration Certificate
- Operating Limitations: POH & placards
- Weight & Balance calculation data

**SAFETY EQUIPMENT**

- Location of fire extinguishers (external)
- First aid kit (under seat)
- Life jackets (if required)
- Personal survival kit (as required)
- Clothing and personal equipment
- Night flight equipment

**BEFORE STARTING ENGINE**

Doors .....CLOSED & SECURE  
 Seats .....ADJUSTED & LOCKED  
 Seat belts & harnesses.....FASTENED  
 Light & pitot heat switches.....OFF  
 Circuit breakers.....CHECK  
 Flight controls .....FREE & CORRECT  
 Elevator trim.....SET FOR TAKEOFF  
 Crew .....BRIEFED

**STARTING ENGINE**

Fuel selector valve .....BOTH  
 Mixture.....RICH  
 Throttle .....SLIGHTLY OPEN  
 Carburetor heat.....OFF  
 Beacon light.....ON  
 Primer (0~3) .....PRIMED & LOCKED  
 Propeller area.....CLEAR  
 Master Switch .....ON  
 MAG & EIS switches ..... BOTH ON  
 BRAKES..... HOLD FIRM  
 IGNITION.....START  
 Oil gauges (pressure / temp.) .....CHECK  
 Battery gauges (volts / charge)..... CHECK

**AFTER STARTING ENGINE**

Fuel flow indicator ..... SET  
 ➔ Full fuel = AUTO, STEP, STEP  
 ➔ Not full = STEP  
 Fuel quantity..... VERIFY  
 Flaps .....RETRACT  
 Nav lights .....ON  
 Throttle ..... 1000 RPM  
 Mixture .....LEAN

**AVIONICS SET-UP**

Avionics switch..... ON  
 EFIS & AUTOPILOT switches (4).. ALL ON  
 GPS/EFIS checks/warnings..... VERIFY  
 Transponder .....GND/1200  
 Autopilot.....TEST / DISENGAGE  
 ATIS (or airport info) .....COPY  
 PFD bugs (HDG, ALT, IAS) .....SET  
 PFD altimeter (BARO).....SET  
 ESIS (standby) altimeter .....SET  
 Flight plan .....INPUT  
 COM/NAV frequencies .....SET  
 NAV 1 & 2 CDI (GPS or VLOC) .....SELECT

**ENGINE RUNUP**

Fuel selector valve .....BOTH  
 Mixture.....RICH  
 Brakes .....HOLD FIRM  
 Throttle..... **1800 RPM** (max 2000 RPM)  
 MAG switch.....CHECK OFF/ON  
 EIS switch .....CHECK OFF/ON  
 Carburetor heat.....CHECK ON/OFF  
 Engine instruments.....GREEN  
 Throttle .....CHECK IDLE  
 Throttle..... **1000 RPM**  
 Friction lock .....ADJUST  
 Mixture .....LEAN FOR TAXI  
 MAG & EIS switches ....VERIFY BOTH ON

**MAG/EIS LIMITS**

Engine = smooth running  
 EIS max drop = **40 RPM**  
 MAG max drop = **175 RPM**  
 exceeds limits? attempt cleaning run:  
 Throttle .....2000 RPM  
 Mixture .....VERY LEAN  
 ➔ Run engine lean for 20 sec  
 Mixture.....RICH  
 Throttle .....1800 RPM  
 MAG/EIS switches .....RE-CHECK  
 ➔ If unsuccessful ABORT FLIGHT

**CREW BRIEFING**

- PIC & crew duties
- Transfer of controls
- Fuel req. & available
- Type of takeoff (normal/short/soft)
- V-speeds review
- Takeoff (distance & available)
- Initial altitude and heading
- Emergency procedures

**PASSENGER BRIEFING**

- Operation of seat belts & harnesses
- Operation of doors and windows
- Operation of heating & air vents
- Operation of intercom & headsets
- No smoking
- Normal & emergency exit procedure
- Emergency equipment (life vests)
- Passenger discomfort

**TAXI**

Taxi instructions.....VERIFY  
 Taxi lights .....ON  
 Brakes (all crew prior to taxi) .....CHECK  
 Flight instruments .....CHECK

**ENROUTE CLIMB**

Carburetor heat.....OFF  
 Throttle.....FULL OPEN  
 Flaps .....RETRACTED  
 Airspeed .....86-98MPH  
 Circuit breakers.....CHECK

**BEFORE TAKEOFF CHECK**

Takeoff brief (see below) .....COMPLETE  
 Flaps (UP or 10° as required) .....SET  
 Carburetor heat.....OFF  
 Heading indicator and bug .....SET  
 Mixture.....RICH  
 External lights .....ALL ON  
 Takeoff instructions.....COPY

**CRUISE**

Autopilot .....VERIFY MODE  
 Carburetor heat.....OFF  
 Throttle .....CRUISE POWER  
 ➔ 2200 RPM - 2699 RPM  
 Mixture .....LEAN  
 Fuel selector (> 5000 ft) .....SELECT  
 External lights.....AS REQUIRED  
 Circuit breakers.....CHECK  
 Oil & battery gauges .....CHECK  
 Fuel remaining.....CHECK

**NORMAL TAKEOFF**

Flaps .....UP  
 Throttle.....FULL OPEN  
 Rotate .....(C172M) 60MPH (T41) 66MPH  
 Climb .....86~98MPH

**CAUTION: IMPROPER LEANING PROCEDURES WILL GREATLY REDUCE ENDURANCE**

**ENROUTE DESCENT**

Autopilot .....VERIFY MODE  
 Carb. heat (<2200 RPM).....ON  
 Mixture .....ADJUST/RICH  
 Fuel selector valve .....BOTH

**SHORT FIELD TAKEOFF**

Flaps.....10°  
 Throttle.....FULL OPEN  
 Rotate .....(C172M) 60MPH (T41) 66MPH  
 Climb 50' .....(C172M) 66MPH (T41) 70MPH

**WHEN CLEAR OF OBSTRUCTION**

Climb .....89MPH

**SOFT FIELD TAKEOFF**

Flaps.....10°  
 Throttle.....FULL OPEN  
 Rotate.....SOON AS ABLE  
**ACCELERATE TO V<sub>y</sub> IN GROUND EFFECT**  
 Climb .....89MPH  
 Flaps .....RETRACT

**TRAINING MANEUVERS**

Autopilot.....DISENGAGE  
 Area.....CLEAR  
 Fuel selector.....BOTH  
 Mixture.....RICH  
 External lights.....ON  
 Airspeed.....BELOW V<sub>a</sub>  
 Emergency landing site .....IDENTIFY

V-speeds	C172M	T41
V <sub>r</sub>	60 MPH	66 MPH
V <sub>x</sub>	71 MPH	73 MPH
V <sub>y</sub>	84 MPH	89 MPH
V <sub>a</sub> (max gross wt.)	112 MPH	122 MPH
V <sub>g</sub>	78 MPH	86 MPH

Yokota Frequencies	
ATIS (Yokota)	128.40
YOKOTA GROUND	133.20
YOKOTA TOWER	134.30
YOKOTA APPROACH	123.80

**APPROACH FOR LANDING**

ATIS (or airport info) .....COPY  
 ATC instructions .....COPY  
 Altimeter .....SET  
 Approach brief .....COMPLETE

**BEFORE LANDING**

Landing brief (see below)..... COMPLETE  
 Seat belts & harnesses ..... SECURE  
 External lights .....ALL ON  
 Carburetor heat..... ON  
 Mixture.....RICH  
 Fuel selector valve ..... BOTH  
 Autopilot.....DISENGAGE

**NORMAL LANDING**

**73MPH FLPS 30°**

Flaps .....AS REQUIRED  
 Airspeed (FLPS UP) .....77~86 MPH  
 Airspeed (FLPS DN) ..... 70~81 MPH  
 Brakes .....APPLY BELOW 40 MPH

**SHORT FIELD LANDING**

Flaps.....30°  
 Approach.....[C172M] 71 MPH [T41] 69 MPH  
 Brakes .....APPLY HEAVY

**SOFT FIELD LANDING**

Flaps.....30°  
 Approach ...[C172M] 71 MPH [T41] 69 MPH  
 Brakes .....APPLY AS REQUIRED

**GO AROUND**

Throttle.....FULL OPEN  
 Carburetor heat.....OFF  
 Flaps .....RETRACT TO 20°  
 Airspeed.....[C172M] 69 MPH [T41] 70 MPH  
 Flaps .....RETRACT  
 Climb.....89 MPH

**AFTER CLEARING RUNWAY**

Flaps .....RETRACT  
 Carburetor heat.....OFF  
 Transponder squawk code .....1200  
 Exterior lights .....AS REQUIRED  
 Pitot heat .....OFF  
 Mixture .....LEAN FOR TAXI  
 Taxi instructions.....VERIFY

**SHUTDOWN**

Brakes.....HOLD  
 EFIS & autopilot switches (4) ....ALL OFF  
 Avionics switch.....OFF  
 Throttle .....1000 RPM  
 MAG & EIS switches .....TEST OFF/ON  
 Mixture .....IDLE/CUTOFF  
 MAG & EIS switches.....OFF  
 Light & pitot heat switches.....ALL OFF  
 Interior lights..... ALL OFF  
 Hobbs & tach time.....NOTE  
 Master Switch .....OFF

**REFUELING**

Fuel types .....MOGAS or AVGAS  
 ➤ Fuel types can be mixed  
 ➤ Always ground aircraft  
 ➤ Never fuel in: night, rain, lightning

**PARKING & SECURING**

Chocks.....SECURE  
 Pitot tube cover .....ATTACH  
 Temp probe cover .....ATTACH  
 Tie-downs (if available) .....SECURE  
 Throttle lock .....INSTALL  
 Gust lock (outside only) .....INSTALL  
 Sun visor (outside only) .....INSTALL  
 Flight log (binder) .....RECORD  
 Squawks .....RECORD & REPORT  
 Windows & vents .....CLOSE  
 Heating plug (winter only).....ATTACH  
 MASTER SWITCH.....**VERIFY OFF**  
 MAG & EIS SWITCHES.....**VERIFY OFF**

**WARNING: LEAVING EIS SWITCH IN THE ON POSITION COULD LEAD TO SERIOUS INJURY OR DEATH IN THE EVENT OF INADVERTENT PROPELLER ENGAGEMENT**

**Yokota Frequencies**

ATIS (Yokota)	128.40
YOKOTA APPROACH	123.80
YOKOTA TOWER	134.30
YOKOTA GROUND	133.20

	C172M	T41
<b>MAX OPERATING WEIGHTS</b>		
Max gross weight	2550 lbs	2500 lbs
Max baggage	108 lbs	120 lbs
Caution: baggage weight in C172M models includes any AUX fuel carried to a maximum total of 108lbs		
<b>FUEL</b>		
Main fuel - usable - (total)	Two tanks 38 US GAL (42 US GAL)	Two tanks 36 US GAL (39 US GAL)
Aux fuel - usable - (total)	One tank (baggage area) 18 US GAL (18 US GAL)	Two tanks (wing tips) 23 US GAL (24 US GAL)
Fuel types	MoGas or Avgas (OK to mix)	
Main fuel drains	One under each wing root	
Fuel strainer knob	Next to oil dipstick	Left side of control panel
Aux fuel drain(s)	Under fuselage	Under each wing tip
<b>OIL</b>		
Capacity	6-8 QTS. for all FTC sorties	
Type	SAE 20WT-50 ashless dispersant	
<b>POWERPLANT</b>		
Engine	Lycoming O-360	
Power	180 HP	
Normal operating range	2200 - 2699 RPM	
Mag/EIS limits	175 RPM drop or 50 RPM difference in drops	
<b>ENVIRONMENTAL</b>		
Heat & air	Cabin heat (exhaust manifold) Cabin air (fuselage inlet) Windows (max open: Vne)	
Vents	Crew & pax	Crew only

	C172M	T41
<b>ELECTRICAL</b>		
Electrical power	14V Alternator x 1 12V Battery x 1 Max 60 amps	
Busses	x 2 = primary and avionics	
Ignition	Engine driven magneto x 1 Electronic ignition x 1 (alt/bat)	
<b>AVIONICS</b>		
PFD	Aspen EFD 1000 (SV)	
MFD	Aspen EFD 500	
MFD	Aspen EFD 1000	
COM/NAV 1	Garmin GTN 650	
COM/NAV 2	Garmin GTN 650	
Transponder	Garmin GTX 300	
Audio panel	Garmin GMA 340	
TCAS	Garmin GTS 800	
Autopilot	S-Tec Thirty	
Stormscope	WX-500	
Backup	L-3 Electronic Standby	
<b>V-SPEEDS</b>		
Va (max wt.)	112 MPH	122 MPH
Va (2150 lbs)	109 MPH	109 MPH
Va (1750 lbs)	98 MPH	98 MPH
Max X/W	14 KTS	14 KTS
Vso	56 MPH	56 MPH
Vs1	64 MPH	64 MPH
Vx	71 MPH	73 MPH
Vy	84 MPH	89 MPH
Vg	78 MPH	86 MPH
Vfe	100 MPH	100 MPH
Vno	145 MPH	145 MPH
Vne	182 MPH	182 MPH

**PILOT IN COMMAND****FITNESS FOR FLIGHT**

ILLNESS

MEDICATION (any, including OTC)

STRESS (current and reserves)

ALCOHOL (8 hours 0.04% BAC)

FATIGUE (current and reserves)

EATING &amp; HYDRATION

**REQUIRED DOCUMENTS**

PILOT CERTIFICATE

CURRENT MEDICAL

PHOTO ID

LOGBOOK ENDORSEMENTS (students)

**CURRENCY**

FLIGHT REVIEW (24 months)

T/O &amp; LAND logged (90 days)

DUAL TRAINING 10 hrs/30 days (students)

FTC CURRENCY &amp; QUALS.

**PROFICIENCY**

FLIGHT EXPERIENCE (total / recent)

TRAINING (total/recent/recurrent)

FAMILIARITY (aircraft and area)

**AIRCRAFT****REQUIRED DOCUMENTS**

AIRWORTHINESS CERTIFICATE (no exp.)

REGISTRATION (3 years)

RADIO OPERATORS LICENSE (intl. pilots)

OPERATING LIMITATIONS &amp; placards

WEIGHT &amp; BALANCE DATA for the aircraft

**REQUIRED MAINTENANCE**

AIRWORTHINESS DIRECTIVES (as required)

VOR CHECKS (30 days for IFR by pilot)

INSPECTIONS (annual &amp; 100 hour)

ALTIMETER/PITOT-STATIC SYS. (24 mo.)

TRANSPONDER (24 mo.)

ELT (24 mo.)

**REQUIRED VFR EQUIPMENT (\$91.205)**

[DAY/NIGHT] "GOOSE A CAT"

Gas gauges, Oil temp gauge, Oil pressure gauge, Safety belts, ELT, Altimeter, Compass, Airspeed indicator, Tachometer

[NIGHT] "FLAPS"

Fuses (circuit breakers), Landing light, Anti-collision lights, Position lights (aka nav lights), Source of adequate electrical power

**ENVIRONMENT****WEATHER**

METAR &amp; TAF (airport weather)

AREA/ROUTE CONDITIONS &amp; WINDS ALOFT

IFR (&gt;1000FT/3SM) MVFR (&gt;3000FT/5SM)

THUNDERSTORMS (CB/VCTS)

AREA/ROUTE FORECASTS

SIGNIFICANT WEATHER

**AIRPORTS & AIRSPACE**

NOTAMS (departure and destination)

TEMPORARY FLIGHT RESTRICTIONS

AIRSPACE &amp; SUA

TERRAIN

FUEL STOPS &amp; ALTERNATE AIRPORTS

**PERSONAL SAFETY MINIMA**

CROSSWIND &amp; TOTAL WIND

TAILWIND

CEILING

VISIBILITY

FUEL RESERVES

CONDITIONS (RAIN ETC.)

FTC LIMITATIONS (pilots &amp; students)

**EXTERNAL FACTORS****HUMAN FACTORS**

ANTI-AUTHORITY

MACHO

RESIGNATION

IMPULSIVENESS

INVULNERABILITY

**PITFALLS**

GET-THERE-ITIS / PRESSURE

SCUD RUNNING

FLIGHT INTO IMC

RUSHING (PREFLIGHT ETC)

COMPLACENCY / ROUTINE

**MISSION FOCUS**

MISSION PURPOSE

IMPORTANCE OF MISSION

COMPLEXITY OF MISSION

PLAN B



**CRUISE FUEL CONSUMPTION (2550 pounds, recommended lean mixture)**

Press. Alt Feet	RPM	20°C Below Standard Temp.		Standard Temperature		20°C Above Standard Temp.	
		% BHP	GPH	% BHP	GPH	% BHP	GPH
<b>2000</b>	<b>2550</b>	---	---	<b>76</b>	<b>10.2</b>	<b>72</b>	<b>9.6</b>
	2500	77	10.3	72	9.6	68	9.1
	2400	69	9.2	64	8.7	61	8.3
	2300	61	8.3	58	7.9	55	7.6
	2200	55	7.5	52	7.2	49	6.9
	2100	49	6.8	46	6.6	43	6.3
<b>4000</b>	<b>2600</b>	---	---	<b>76</b>	<b>10.2</b>	<b>72</b>	<b>9.6</b>
	2500	73	9.7	68	9.2	65	8.7
	2400	65	8.8	62	8.3	58	8.0
	2300	58	8.0	55	7.6	52	7.3
	2200	52	7.3	49	6.9	47	6.6
	2100	46	6.6	44	6.3	41	6.1
<b>6000</b>	<b>2650</b>	---	---	<b>76</b>	<b>10.1</b>	<b>72</b>	<b>9.6</b>
	2600	77	10.3	72	9.6	68	9.1
	2500	69	9.3	65	8.8	62	8.4
	2400	62	8.4	59	8.0	56	7.6
	2300	56	7.7	53	7.3	50	7.0
	2200	50	7.0	47	6.7	44	6.4
<b>8000</b>	<b>2700</b>	---	---	<b>76</b>	<b>10.1</b>	<b>71</b>	<b>9.5</b>
	2600	73	9.8	69	9.2	65	8.7
	2500	66	8.8	62	8.4	59	8.0
	2400	59	8.1	56	7.7	53	7.3
	2300	53	7.4	50	7.0	47	6.7
	2200	47	6.7	45	6.4	42	6.1
<b>10,000</b>	<b>2700</b>	<b>77</b>	<b>10.2</b>	<b>72</b>	<b>9.6</b>	<b>68</b>	<b>9.1</b>
	2600	69	9.3	65	8.8	62	8.4
	2500	63	8.5	59	8.1	56	7.7
	2400	57	7.8	53	7.4	50	7.0
	2300	51	7.1	48	6.8	45	6.5
	2200	47	6.7	45	6.4	42	6.1
<b>12,000</b>	<b>2700</b>	<b>69</b>	<b>9.3</b>	<b>65</b>	<b>8.8</b>	<b>62</b>	<b>8.4</b>
	2600	66	8.9	62	8.4	59	8.0
	2500	60	8.2	56	7.7	53	7.4
	2400	54	7.5	51	7.1	48	6.7
	2300	48	6.8	45	6.5	42	6.2

**TAKEOFF DISTANCE (hard surface runway with flaps up)**

GROSS WEIGHT POUNDS	IAS AT 50' MPH	HEAD WIND KNOTS	AT SEA LEVEL & 59°F		AT 2500 FT. & 50°F		AT 5000 FT. & 41°F		AT 7500 FT. & 32°F	
			GROUND RUN	TOTAL TO CLEAR 50 FT OBS	GROUND RUN	TOTAL TO CLEAR 50 FT OBS	GROUND RUN	TOTAL TO CLEAR 50 FT OBS	GROUND RUN	TOTAL TO CLEAR 50 FT OBS
2300	68	0	865	1525	1040	1910	1255	2480	1565	3855
		10	615	1170	750	1485	920	1955	1160	3110
		20	405	850	505	1100	630	1480	810	2425
2000	63	0	630	1095	755	1325	905	1625	1120	2155
		10	435	820	530	1005	645	1250	810	1685
		20	275	580	340	720	425	910	595	1255
1700	58	0	435	780	520	920	625	1095	765	1370
		10	290	570	355	680	430	820	535	1040
		20	175	385	215	470	270	575	345	745

- NOTES: 1. Increase distance 10% for each 25°F above standard temperature for particular altitude.  
 2. For operation on a dry, grass runway, increase distances (both "ground run" and "total to clear 50 ft. obstacle") by 7% of the "total to clear 50 ft. obstacle" figure.

**LANDING DISTANCE - SHORT FIELD (flaps 30°)**

If a landing with flaps up is necessary, increase approach speed by 10 mph IAS and allow for 35% longer distance

WEIGHT LBS	SPEED AT 50 FT IAS	PRESS ALT FT.	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS.	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
2550	71	S.L.	545	1290	585	1320	585	1350	605	1380	625	1415
		1000	565	1320	585	1350	605	1385	625	1420	650	1450
		2000	585	1355	610	1385	630	1420	650	1455	670	1490
		3000	610	1385	630	1425	655	1460	675	1495	695	1530
		4000	630	1425	655	1460	675	1495	700	1535	725	1570
		5000	655	1460	680	1500	705	1535	725	1575	750	1615
		6000	680	1500	705	1540	730	1580	755	1620	780	1660
		7000	705	1545	730	1585	760	1625	785	1665	810	1705
		8000	735	1585	760	1630	790	1670	815	1715	840	1755

**CRUISE FUEL CONSUMPTION (2500 pounds, recommended lean mixture)**

Press. Alt Feet	RPM	20°C Below Standard Temp.		Standard Temperature		20°C Above Standard Temp.	
		% BHP	GPH	% BHP	GPH	% BHP	GPH
2000	2550	---	---	76	10.2	72	9.6
	2500	77	10.3	72	9.6	68	9.1
	2400	69	9.2	64	8.7	61	8.3
	2300	61	8.3	58	7.9	55	7.6
	2200	55	7.5	52	7.2	49	6.9
4000	2100	49	6.8	46	6.6	43	6.3
	2600	---	---	76	10.2	72	9.6
	2500	73	9.7	68	9.2	65	8.7
	2400	65	8.8	62	8.3	58	8.0
	2300	58	8.0	55	7.6	52	7.3
6000	2200	52	7.3	49	6.9	47	6.6
	2100	46	6.6	44	6.3	41	6.1
	2650	---	---	76	10.1	72	9.6
	2600	77	10.3	72	9.6	68	9.1
	2500	69	9.3	65	8.8	62	8.4
8000	2400	62	8.4	59	8.0	56	7.6
	2300	56	7.7	53	7.3	50	7.0
	2200	50	7.0	47	6.7	44	6.4
	2700	---	---	76	10.1	71	9.5
	2600	73	9.8	69	9.2	65	8.7
10,000	2500	66	8.8	62	8.4	59	8.0
	2400	59	8.1	56	7.7	53	7.3
	2300	53	7.4	50	7.0	47	6.7
	2200	47	6.7	45	6.4	42	6.1
	2700	77	10.2	72	9.6	68	9.1
12,000	2600	69	9.3	65	8.8	62	8.4
	2500	63	8.5	59	8.1	56	7.7
	2400	57	7.8	53	7.4	50	7.0
	2300	51	7.1	48	6.8	45	6.5
	2700	69	9.3	65	8.8	62	8.4
	2600	66	8.9	62	8.4	59	8.0
	2500	60	8.2	56	7.7	53	7.4
	2400	54	7.5	51	7.1	48	6.7
	2300	48	6.8	45	6.5	42	6.2

**TAKEOFF DISTANCE (hard surface runway with flaps 10°)**

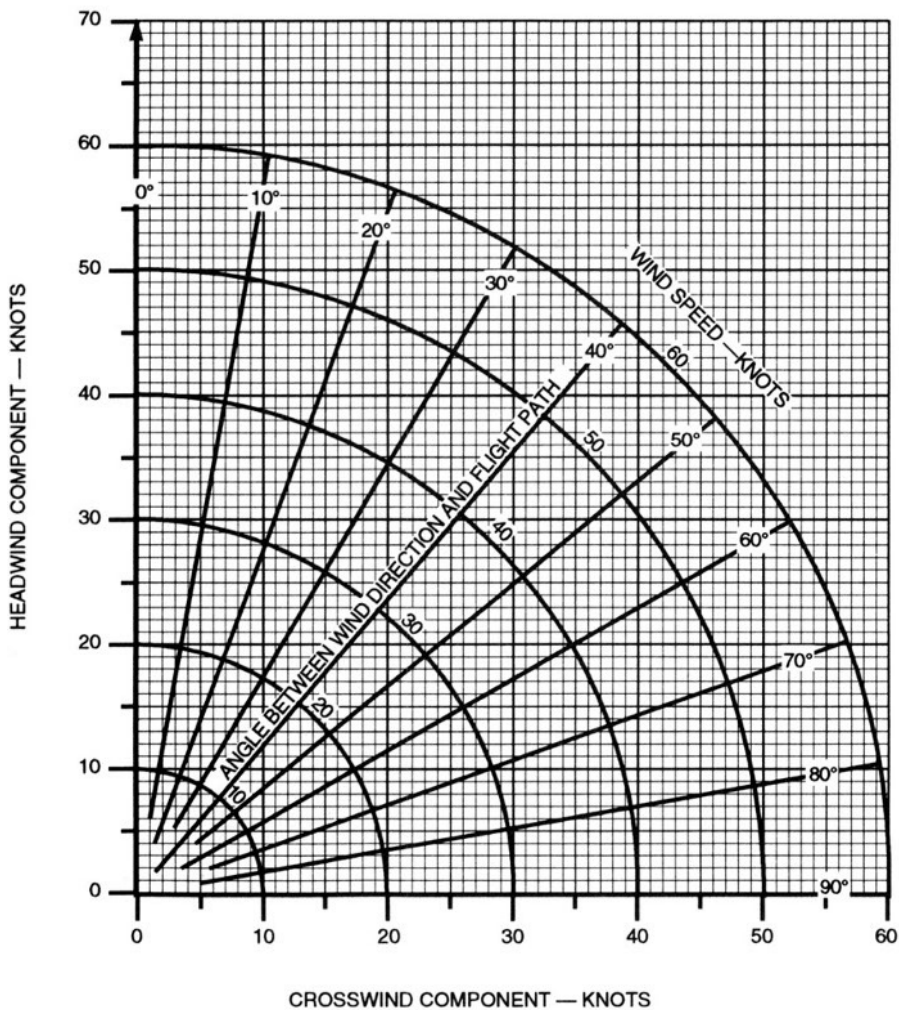
**TAKE-OFF**  
**TAKE OFF DISTANCE FROM HARD SURFACE RUNWAY**

MODEL	GROSS WEIGHT LBS	IAS AT 50 FT. MPH	HEAD WIND KNOTS	@ S.L. & 59° F		@ 2500 ft & 50° F		@ 5000 ft & 41° F		@ 7500 ft & 32° F	
				GROUND ROLL	TOTAL To Clear 50' OBS.	GROUND ROLL	TOTAL To Clear 50' OBS.	GROUND ROLL	TOTAL To Clear 50' OBS.	GROUND ROLL	TOTAL To Clear 50' OBS.
180HP 172 D-H	1900	61	0	320	715	380	820	460	960	545	1115
			10	205	520	245	600	300	710	365	830
			20	110	345	140	405	175	485	220	580
	2200	65	0	445	935	535	1085	645	1290	770	1525
			10	295	690	355	810	440	970	530	1160
			20	170	475	215	565	270	690	335	835
	2500	70	0	600	1205	720	1420	875	1715	1050	2080
			10	405	905	495	1075	610	1315	745	1610
			20	250	640	310	770	390	955	485	1190

NOTE: 1- Increase distance 10% for each 25°F above standard temperature for particular altitude

**LANDING DISTANCE - SHORT FIELD (flaps 30°, hard surface, no wind)**

MODEL	GROSS WEIGHT LBS	APPROACH IAS MPH	@ S.L. & 59° F		@ 2500 ft & 50° F		@ 5000 ft & 41° F		@ 7500 ft & 32° F	
			GROUND ROLL	TOTAL To Clear 50' Obs.	GROUND ROLL	TOTAL To Clear 50' Obs.	GROUND ROLL	TOTAL To Clear 50' Obs.	GROUND ROLL	TOTAL To Clear 50' Obs.
180HP 172 D-H	1900	60	500	980	520	1030	550	1080	580	1140
	2200	64	560	1100	590	1155	620	1220	660	1290
	2500	69	610	1200	640	1260	685	1335	725	1410



<b>WIND Limitations</b>	Max wind	Max X-wind (Yokota)	Max X-wind (cross country)	Max demonstrated X-wind component
Student Pilots	20 kts	10 kts	8 kts	15 kts
Private Pilots or higher	30 kts	25 kts	25 kts	

**ENGINE FAILURE - TAKEOFF ROLL**

**Throttle** ..... **IDLE**  
**Brakes** ..... **APPLY**  
 Flaps ..... **RETRACT**  
 Mixture ..... **CUTOFF**  
 Mag & EIS switches ..... **OFF**  
 Master switch ..... **OFF**

**ENGINE FAILURE - AFTER TAKEOFF****Airspeed**

**Flaps up** .....(C172M) **79-88MPH** (T41) **77-86MPH**  
**Flaps down** .....(C172M) **71-83MPH** (T41) **70-81MPH**  
 Mixture ..... **CUTOFF**  
 Fuel selector ..... **OFF**  
 Mag & EIS switches ..... **OFF**  
 Flaps ..... **AS REQUIRED**  
 Master switch ..... **OFF**

**ENGINE FAILURE - DURING FLIGHT**

**Airspeed** ..... (C172M) **78MPH** (T41) **86MPH**

Primer ..... **CHECK IN**  
 EIS & MAG switches ..... **ON**  
 Master switch ..... **ON**  
 Carb heat ..... **ON**  
 Mixture ..... **RICH**  
 Fuel selector ..... **BOTH**  
 Starter (if prop stopped) ..... **ENGAGE**  
 Throttle/mixture. **TRY DIFFERENT SETTINGS**

- ➔ If power is not restored, execute  
Emergency Landing w/out Engine  
Power

**EMERGENCY LANDING  
WITHOUT ENGINE POWER****Airspeed**

**Flaps up** .....(C172M) **79-88MPH** (T41) **77-86MPH**  
**Flaps down** .....(C172M) **71-83MPH** (T41) **70-81MPH**

EIS & MAG switches ..... **OFF**  
 Mixture ..... **CUTOFF**  
 Fuel selector ..... **CUTOFF**  
 Transponder ..... **7700**  
 Radio call (121.5) ..... **"MAYDAY"**  
 Seat belts and harnesses ..... **TIGHTEN**  
 Cabin doors ..... **UNLATCH**

once landing is assured

ELT remote switch ..... **ON**  
 Flaps (recommended) ..... **30°**  
 Final approach speed ..... **69MPH**  
 Master switch ..... **OFF**  
 Touchdown ..... **TAIL SLIGHTLY LOW**

**PRECAUTIONARY LANDING  
WITH ENGINE POWER**

Seat belts and harnesses ..... **TIGHTEN**  
 Transponder ..... **7700**  
 Radio call (121.5) ..... **"MAYDAY"**  
 ELT remote switch ..... **ON**  
 Flaps ..... **20°**  
 Airspeed ..... (C172) **70MPH** (T41) **76MPH**  
 Selected field .. **OVERFLY & INVESTIGATE**  
 Flaps ..... **RETRACT WHEN SAFE**  
 Avionics switch ..... **OFF**  
 Electrical switches ..... **OFF**

once landing is assured

Flaps (final approach) ..... **30°**  
 Final approach ..... **76MPH**  
 Master switch (prior to touchdown) ..... **OFF**  
 Cabin doors (prior to touchdown) ... **UNLATCH**  
 Touchdown ..... **TAIL SLIGHTLY LOW**  
 EIS & MAG switches (upon touchdown) ... **OFF**  
 Mixture (upon touchdown) ..... **OFF**  
 Brakes ..... **AS REQUIRED**

**DITCHING (WATER LANDING)**

Transponder ..... **7700**  
 Radio call (121.5) ..... **"MAYDAY"**  
 ELT remote switch ..... **ON**  
 Loose objects ..... **SECURE OR JETTISON**  
 Seat belts and harnesses ..... **TIGHTEN**

approach

- ➔ High winds and/or heavy seas - land  
into the wind. Light winds and/or  
heavy swells - land parallel to swells
- ➔ Flaps (recommended) **20°-30°**
- ➔ Throttle **300 FPM** descent at **76MPH**
- ➔ If power is not available, approach  
at (C172M) **80MPH** (T41) **86MPH** with flaps  
**UP** or (C172M) **78MPH** (T41) **81MPH** with  
flaps **10°**
- ➔ Unlatch cabin doors prior to  
touchdown

touchdown

- ➔ Touchdown in a level attitude at a  
minimum descent rate
- ➔ Cushion face during touchdown
- ➔ Evacuate airplane & inflate life vests

**PARTIAL POWER/ENGINE LOSS**

Fuel selector .. **SWITCH TANKS (60 SEC.)**  
 Fuel selector ..... **SELECT**

**ENGINE FIRE DURING START****Starter**..... **CONTINUE CRANKING**Throttle..... **FULL OPEN**

➔ If engine starts:

Power (few minutes) .....1700 RPM

Engine.....**SHUTDOWN**

➔ If engine fails to start:

Throttle..... **FULL OPEN**Mixture..... **CUTOFF**Starter ..... **CONTINUE CRANKING**Master switch..... **OFF**EIS & MAG switches..... **OFF**Fuel selector ..... **OFF**

➔ Abandon aircraft and use fire extinguisher

➔ Call 911

**ENGINE FIRE ON THE GROUND****Fuel selector** ..... **OFF****Mixture** ..... **CUTOFF****EIS & MAG switches**..... **OFF****Master switch** ..... **OFF**

➔ Abandon aircraft and use fire extinguisher

➔ Call 911

**ENGINE FIRE IN FLIGHT****Fuel selector** ..... **OFF****Mixture** ..... **CUTOFF**Master switch..... **OFF**Cabin air & heat ..... **OFF**Airspeed ..... **110MPH**

➔ Execute Emergency Landing Without Engine Power

**WING FIRE IN FLIGHT****External lights**..... **ALL OFF****Pitot heat** ..... **OFF**Master switch..... **OFF**Cabin air & heat ..... **OFF**Airspeed ..... **110MPH**

➔ Slip to keep flames away from fuel tanks and cabin

➔ Taxi lights may be used as required if not on the affected wing

**CABIN OR ELECTRICAL FIRE IN FLIGHT****Master switch** ..... **OFF**Vents..... **CLOSED**Cabin air & heat ..... **OFF**

➔ Open cabin air, vents and/or windows when fire is out

➔ Land as soon as practicable

➔ If fire is out and electrical equipment is required:

Electrical switches..... **ALL OFF**Circuit breakers ..... **CHECK BUT DO NOT RESET**Master switch..... **ON**Electrical switches ..... **ON AS REQUIRED****LOW OIL PRESSURE (NORMAL OIL TEMP)**

➔ Make minimum power changes practical

➔ Conserve altitude until landing is assured

➔ Land as soon as practicable

**LOW OIL PRESSURE (HIGH OIL TEMP)**

➔ Reduce power to min. necessary

➔ Execute Precautionary Landing with Engine Power

**AMMETER EXCESSIVE RATE OF CHARGE**Alternator circuit breaker ..... **PULL**Non-essential equipment ..... **OFF**

➔ Terminate flight as soon as practical

**AMMETER DISCHARGE**Avionics switch..... **OFF**Alternator circuit breaker..... **CHECK & RESET**Master switch..... **OFF THEN ON**Ammeter .... **CHECK BATTERY CHARGING**Avionics switch..... **ON**

➔ If low voltage light remains on or ammeter still indicates discharge:

Non-essential equipment ..... **OFF**

➔ Terminate flight as soon as practical

➔ Note: if the master switch is turned off after the battery has drained below current level to activate battery contactor, subsequent activation of master switch will be ineffective

**LANDING GEAR - FLAT MAIN TIRE**

Flaps .....AS REQUIRED

- ➔ Use fuel selector to reduce weight on the side of the flat tire
- ➔ If practical, land with crosswind on the side opposite the flat tire
- ➔ Line up for landing on the same side of the runway as the good tire
- ➔ Touchdown slightly wing low on the side of the good tire
- ➔ Lower the nose gear for directional control
- ➔ Use aileron to keep weight off the flat tire as long as possible
- ➔ Use brakes on the side of the good tire only

**LANDING GEAR - FLAT NOSE TIRE**

Flaps.....30°

- ➔ Touchdown on the runway centerline
- ➔ Use yoke full aft to minimize weight on the nose gear
- ➔ Use minimum braking required

**SPIN**Throttle ..... **IDLE**Ailerons ..... **NEUTRAL**

- ➔ FULL RUDDER DEFLECTION OPPOSITE TO THE DIRECTION OF THE SPIN
- ➔ Control wheel (yoke) forward to break the stall
- ➔ Neutral rudder after rotation stops
- ➔ Control wheel (yoke) back to smoothly recover from the ensuing dive

**CABIN DOOR OPEN IN FLIGHT**

- ➔ Fly the airplane - keep positive control at all times
- ➔ Land the airplane and close door on the ground - approach is unaffected
- ➔ If landing is impractical, climb to a safe altitude then:

Airspeed..... (C172) 70MPH (T41) 76MPH

Vents ..... CLOSED

Window ..... OPEN

- ➔ Push door ajar then slam it closed

**AUTOPILOT FAILURE**Autopilot ..... **DISENGAGE**Autopilot master switch ..... **OFF****AFTER EMERGENCY LANDING**

Master switch.....OFF

ELT.....ACTIVATE

- ➔ Abandon aircraft until all danger of fire has passed
- ➔ When safe to return to the aircraft, remove the ELT and install the antenna (ELT is behind the rear panel of the baggage area), then turn the ELT on
- ➔ If the radio is still operative make periodic calls on 121.5 and monitor the frequency for instructions

**RADIO FAILURE**

- ➔ Check audio panel for improper settings (volume, squelch, com selector, pilot/pax/crew mutes)
- ➔ Check com for volume, squelch and frequency
- ➔ Switch coms and attempt radio calls
- ➔ Switch headphone jacks to another seating position
- ➔ Check circuit breakers (reset only once)
- ➔ Squawk 7600 on transponder
- ➔ Make calls "into the blind"
- ➔ Monitor and join the traffic pattern when safe and look for tower light gun signals

**LIGHT GUN SIGNALS IN FLIGHT**

FLASHING RED.....AIRPORT UNSAFE

STEADY RED .....HOLD IN POSITION

FLASHING RED/GREEN .....CAUTION

FLASHING GREEN .....RETURN FOR LANDING

STEADY GREEN .....CLEARED TO LAND

**EMERGENCY DESCENT**

Carb heat ..... ON

Throttle..... IDLE

Mixture..... RICH

Flaps..... 30°

Airspeed ..... 100MPH