FAA Approved
Airplane Flight Manual Supplement

DOCUMENT NUMBER 172060

For

Cessna 172 N

Serial No. 17271035 and 17274009

Serial No: _____ Reg. #: _____

This supplement must be attached to the Pilots Operating Handbook and the FAA Approved Airplane Flight Manual when **STC SA2196CE** (which increases the gross weight to **2550** lbs) and **STC SA4428SW**, (which installs an O-360 Lycoming 180 HP engine), are installed.

The information contained herein supplements the information of the basic Airplane Flight Manual. For limitations, procedures, and performance information not contained in this supplement, consult the basic Airplane Flight Manual.

FAA Approved _____
for Margaret Kline
Manager, Wichita Aircraft Certification Office
FAA Central Region,
Wichita, KS
Date: 2/3/2012
Original Date: 09/25/87

Log of Revisions

Revision	Pages	Description	Approved	Date
Orig	All	Original Issue		09/25/87
1	1-10	Added Revision page Revised cover sheet Changed page numbers	G. M. Baker	10/02/87
2	3 & 4	Added O-360-A4N Revised Company Name	B.L. Sorensen	03/21/90
3	All	Reformatted, Added Document Number Revised Format Moved Table of Contents from Cover Page and Added Section Add Propellers Added Fuel Consumption Chart Add Section 7, Servicing Requirements	G M Baker	2/3/2012

TABLE OF CONTENTS

SECTION 1: GENERAL

The information contained in this Flight Manual Supplement is FAA Approved material, and is applicable to the operation of the airplane in accordance with STC SA2196CE which increases the maximum certificated takeoff weight to 2550lbs, when the airplane has previously been modified with STC SA4428SW.

DESCRIPTIVE DATA

ENGINE

Engine Model Number: 0-360-A2F, A3A, A4A. A4M, and A4N
Engine Type: Normally aspirated, direct drive, air cooled, horizontally opposed, carburetor equipped, four cylinder engine with 360 cu. in. displacement.
Horsepower Rating and Engine Speed 180 rated BHP at 2700RPM.
Maximum Continuous RPM: 2700 RPM

PROPELLERS:

Sensenich Propellers approved on installations using the O-360-A4 series engines only
Propeller Manufacturer: Sensenich Corporation
Propeller Model Number: 76EM8S14-0-60
Number of Blades: 2.
Propeller Diameter: Maximum .....76 inches.
Minimum .....76 inches.
Pitch Range: 62” to 56 “

Propeller Manufacturer: Sensenich Corporation.
Propeller Model Number: 76EM8S-0-60 (when using MKA3.5 prop spacer).
Number of Blades: 2.
Propeller Diameter: Maximum: .....76 inches.
Minimum:.....76 inches.
Pitch Range: 62” to 56”

Approved on all approved engine installations:
Propeller Manufacturer: McCauley Accessory Division.
Propeller Model Number: 1A170/CFA
1A170E/CFA
Number of Blades: 2.
Propeller Diameter: Maximum: .....76 inches.
Minimum:.....74.5 inches.
Propeller Type: Fixed Pitch
Pitch Range: 60” to 56”

Approved on installations using the O-360-A4A, -A4M, -A4N, and A3A engines only:

Propeller Manufacturer: McCauley Accessory Division.
Propeller Model Number: 1A170/JFA

Number of Blades: 2.
Propeller Diameter: Maximum:.....76 inches.
Minimum:.....74.5 inches.
Propeller Type: Fixed Pitch
Pitch Range: 60” to 56”

MAXIMUM CERTIFICATED WEIGHTS

Takeoff,	Normal	2550 lbs.
	Utility	2000 lbs.
Landing,	Normal	2550 lbs.
	Utility	2000 lbs.

SECTION 2: LIMITATIONS

AIRSPEED INDICATOR MARKINGS

Air Plains Services PN: 172861 or 172861-2 or existing airspeed indicator, marked as follows:

MARKING	KIAS VALUE
White Arc	40-85
Green Arc	50-127
Yellow Arc	127-158
Red Line	158

AIRSPEED LIMITATIONS

VA Maneuvering Speed:

2550 Pounds	105 KIAS
2150 Pounds	95 KIAS
1750 Pounds	85 KIAS

POWER PLANT LIMITATIONS

Engine Model Number: O-360-A4A, A4M, A4N, A4F & A3A
Maximum Power: 180 BHP rating
Maximum Continuous RPM: 2700 RPM

Static RPM Limits : 2250 to 2450 RPM

WEIGHT LIMITS

Maximum Takeoff Weight,	Normal	2550 lbs.
	Utility	2000 lbs.
Maximum Landing Weight,	Normal	2550 lbs.
	Utility	2000 lbs.

CENTER OF GRAVITY LIMITS

NORMAL CATEGORY

Center of Gravity Range:

Forward: 35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 41.0 inches aft of datum at 2550 lbs.

Aft: 47.3 inches aft of datum at all weights.

UTILITY CATEGORY

Center of Gravity Range:

Forward: 35.0 inches aft of datum at 1950 lbs. or less, with straight line variation to 35.5 inches aft of datum at 2000 lbs.

Aft: 40.5 inches aft of datum at all weights.

FLIGHT LOAD FACTORS

NORMAL CATEGORY

Flight Load Factors (Maximum Takeoff Weight - 2550 lbs):

Flaps Up .....+3.8g, -1.52g

Flaps Down.....+3.0g

PLACARDS

10. Near airspeed indicator:

MANEUVER SPEED - 105 KIAS

SECTION 3: EMERGENCY PROCEDURES

AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure after Takeoff:
- Wing Flaps Up .....70 KIAS
- Wing Flaps Down.....65 KIAS

Maneuvering Speed:
- 2550 lbs .....105 KIAS
- 2150 lbs .....95 KIAS
- 1750 lbs .....85 KIAS

Maximum Glide:
- 2550 lbs .....68 KIAS
- 2150 lbs .....62 KIAS
- 1750 lbs .....56 KIAS

Precautionary Landing With Engine Power .....65 KIAS

Landing Without Engine Power:
- Wing Flaps Up .....70 KIAS
- Wing Flaps Down.....65 KIAS

ENGINE FAILURES

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. Airspeed ..... 70 KIAS (Flaps Up)
   65 KIAS (Flaps Down)

ENGINE FAILURE DURING FLIGHT

1. Airspeed .....75 KIAS

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

1. Airspeed ..... 70 KIAS (Flaps Up)
   65 KIAS (Flaps Down)
5. Wing Flaps .....AS REQUIRED (30° recommended)

PRECAUTIONARY LANDING WITH ENGINE POWER

2. Airspeed .....65 KIAS
5. Wing Flaps ..... 30° (on final approach)
6. Airspeed ..... 65 KIAS

DITCHING

4. Wing Flaps ..... 20-30°

NOTE
If no power is available, approach at 70 KIAS with flaps up or at 65 KIAS with 10° flaps.

ICING

INADVERTENT ICING ENCOUNTER

11. Approach at 80 to 90 KIAS depending upon the amount of the accumulation.

SECTION 4: NORMAL PROCEDURES

NORMAL PROCEDURES

SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 2550 pounds and may be used for any lesser weight.

Takeoff
- Normal Climb Out..... 75-85 KIAS
- Short Field Takeoff, Flaps 10°, Speed at 50 Feet .....57 KIAS

Enroute Climb, Flaps Up:
- Normal, Sea Level..... 75-85 KIAS
- Normal, 10,000 Feet..... 70-80 KIAS
- Best Rate of Climb, Sea Level .....73 KIAS
- Best Rate of Climb, 10,000 Feet .....72 KIAS
- Best Angle of Climb, Sea Level.....62 KIAS
- Best Angle of Climb, 10,000 Feet.....67 KIAS

Landing Approach:
- Normal Approach, Flaps Up ..... 65-75 KIAS
- Normal Approach, Flaps 30° ..... 60-70 KIAS
- Short Field Approach, Flaps 30° .....62 KIAS

Balked Landing:
- Maximum Power, Flaps 20°. .....60 KIAS

Maximum Recommended Turbulent Air Penetration Speed:
- 2550 Lbs .....105 KIAS
- 2150 Lbs .....95 KAIS
- 1750 .....85 KIAS

SHORT FIELD TAKEOFF

Climb Speed..... 57 KIAS (until all obstacles are cleared)

ENROUTE CLIMB

Airspeed ..... 75-85 KIAS

LANDING

NORMAL LANDING

1. Airspeed.....65-75 KIAS (Flaps Up)
2. Wing Flaps.....AS DESIRED
   (0-10° below 110 KIAS, 10-30° below 8 KIAS)
3. Airspeed..... 60-70 KIAS (Flaps Down)

SHORT FIELD LANDING

1. Airspeed.....65-75 KIAS (Flaps Up)
2. Wing Flaps.....FULL DOWN (30 °)
3. Airspeed.....62 KIAS (until flare)

BALKED LANDING

5. Wing Flaps..... 10° (until obstacles are cleared)

RETRACT SLOWLY after reaching a safe altitude and 65 KIAS.

SECTION 5: PERFORMANCE

LANDING DISTANCE - SHORT FIELD

CONDITIONS:
Flaps 30°
NOTES:
4. If a landing with flaps up is necessary, increase approach speed by 9 KIAS and allow for 35% longer distance.

Weigh t LBS	Speed At 50 Ft KIAS	Press Alt Ft	O°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	62	S.L	545	1290	565	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

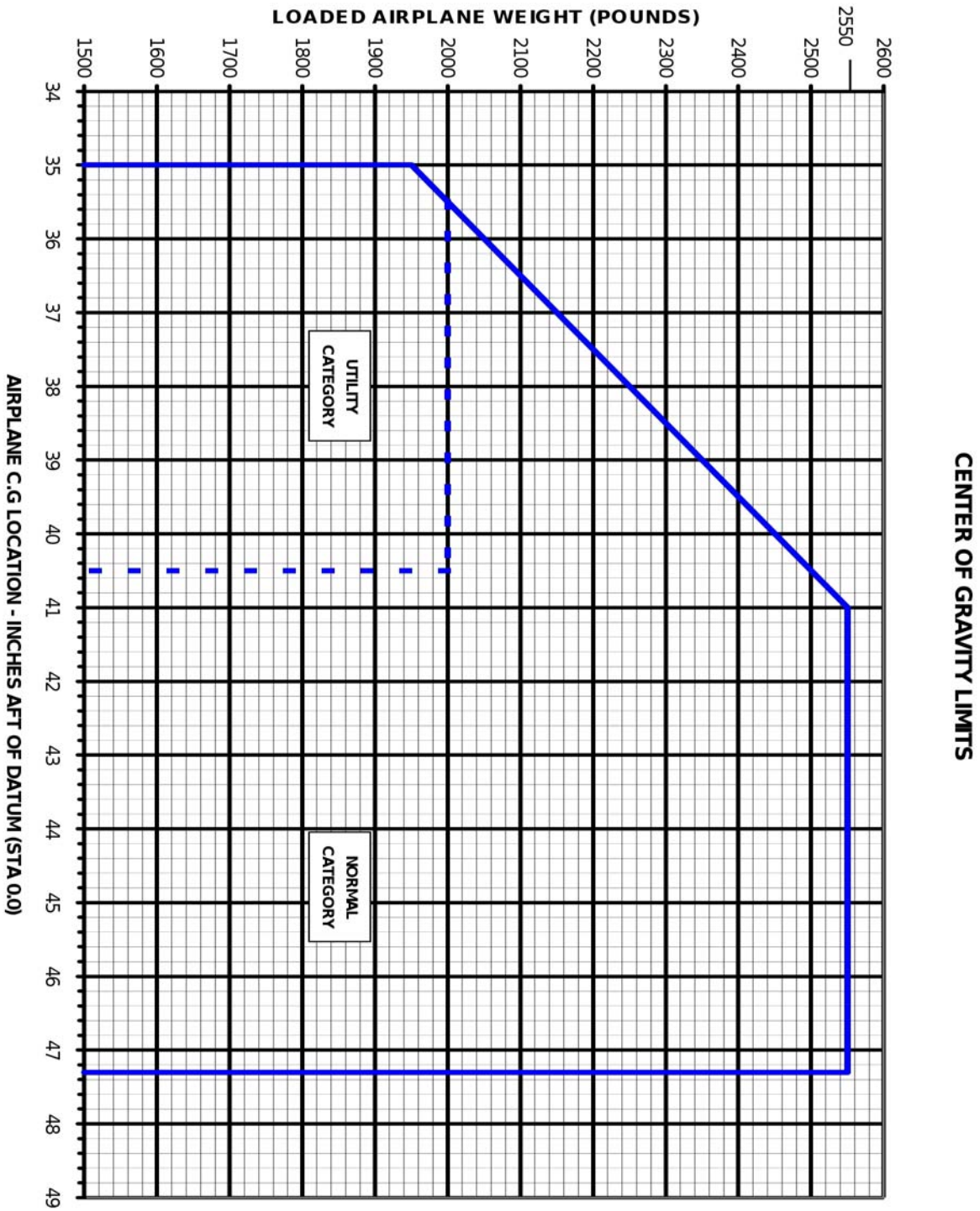
CRUISE FUEL CONSUMPTION
(Not FAA Approved)

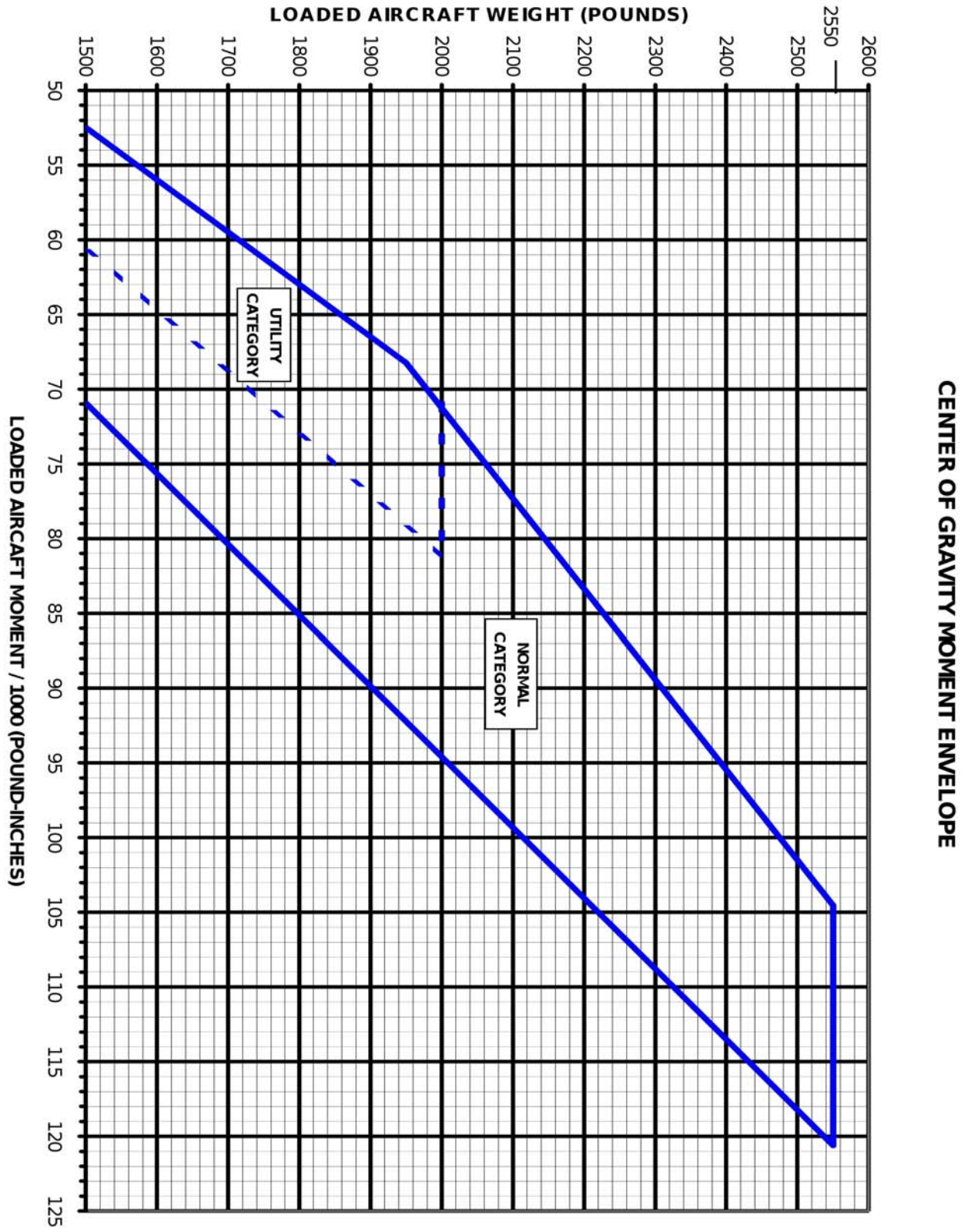
Conditions:

2550 Pounds
Recommended Lean Mixture

		20°C Below Standard Temp.		Standard Temperature		20°C Above Standard Temp.	
Press. Alt Feet	**RPM**	**% 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
	2100	49	6.8	46	6.6	43	6.3
4000	**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
	2200	52	7.3	49	6.9	47	6.6
	2100	46	6.6	44	6.3	41	6.1
6000	**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
	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
8000	**2700**	**---**	**---**	**76**	**10.1**	**71**	**9.5**
	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
10,000	**2700**	**77**	**10.2**	**72**	**9.6**	**68**	**9.1**
	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
12,000	**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

SECTION 6: WEIGHT AND BALANCE




CENTER OF GRAVITY MOMENT ENVELOPE
LOADED AIRCRAFT WEIGHT (POUNDS)
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2550
2600
LOADED AIRCAFT MOMENT / 1000 (POUND-INCHES)
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
UTILITY CATEGORY
NORMAL CATEGORY

SECTION 7: HANDLING, SERVICE AND MAINTENANCE

To operate at the 2550 gross weight, the aircraft must be equipped with 6 or more ply tires on both the main wheels and nose wheel on all models.

- Tire Pressure should be:
  - Nose Gear .....45 psi
  - Main Gear .....38 psi