AIRPLANE FLIGHT MANUAL

MODEL PA-28-180

DUPLICATE

FAA IDENTIFICATION NO. N5516Z

SERIAL NO. 28-7305325

APPLICABLE TO SERIAL NUMBERS 28-7305001 THROUGH 28-7305601

AND SERIAL NUMBER 28-E13

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

FAA APPROVED: H. W. Barnhouse

H. W. Barnhouse, FAA DOA SO-1
Piper Aircraft Corporation

DATE: May 22, 1972

Log of Revisions

REV. NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	6	Procedures Section: Added the following wording to Paragraph 3. c: "and full opposite aileron"	H.W. Evans	6-29-72
2	Title	Removed Serial Numbers	H.W. Evans	6-11-72
3	7	Revised Limitations on AutoControl III and AutoFlite II and revised Emergency Procedures on AutoControl III	H.W. Evans	7-1-72
	8	Revised Emergency Procedures on AutoFlite II		
4	8	Corrected item 9. b. for serial number restrictions. Moved Item 3 to Page 9.	H.W. Lamhouse	3-20-73
	9	Added information from Page 8.		
5	TITLE	Added Serial Number Effectivity	H.W. Lamhouse	9-12-73
6	TITLE	Added Serial Number 28-E13	H.W. Lamhouse	5-14-74
7	1	Changed oil pressure gauge markings.	Ward Evans	7-25-75

Piper Model PA-28-180
Normal and Utility Categories

AIRPLANE FLIGHT MANUAL

1. Limitations Section — The following limitations must be observed in the operation of this airplane:

Engine	Lycoming 0-360-A4A with carburetor setting IO-3878
Engine Limits	For all operations, 2700 rpm, 180 hp.
Fuel	100/130 minimum octane aviation fuel.
Propeller	Sensenich M76EMMS or 76EM8S5. Maximum diameter 76 inches, minimum diameter 76 inches. Static RPM at maximum permissible throttle setting. Not over 2425, not under 2325. No additional tolerance permitted.
Power Instruments	Oil Temperature: GREEN arc (normal operating range) 75° to 245° RED line (maximum) 245°F
	Oil Pressure: GREEN arc (normal operating range) 60 psi to 90 psi YELLOW arc (caution range) 25 psi to 60 psi RED line (minimum) 25 25 psi when installed or 60 psi when installed RED line (maximum) 90 psi
	Fuel Pressure: GREEN arc (normal operating range) .5 psi to 8 psi RED line (minimum) .5 psi RED line (maximum) 8 psi
	Tachometer: GREEN arc (normal Operating range) 500 to 2700 rpm RED line (maximum continuous power) 2700 rpm

FAA APPROVED 5-22-72
REVISED 7-25-75

Airspeed Limits

Never exceed	171 mph
Maximum structural cruise	140
Maneuvering	127
Flaps extended	115
Maximum positive load factor	3.8 Normal Category
Maximum positive load factor	4.4 Utility Category
Maximum negative load factor	No inverted maneuvers approved

Maximum Weight

2450 lbs - Normal Category; 1950 lbs - Utility Category.

Baggage Capacity

200 lbs.

C.G. Range

The datum used is 78.4 inches ahead of wing leading edge at the intersection of the straight and tapered section.

1. Normal Category

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
2450	87.4	93.0
2050	82.0	93.0

2. Utility Category

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
1950	82.0	86.5

Straight line variation between points given.

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See weight and balance section for proper loading instructions.

Maneuvers

1. Normal Category - All acrobatic maneuvers including spins prohibited

2. Utility Category - Approved maneuvers for Utility Category only.

	Entry Speed
Steep Turns	127 mph
Lazy Eights	127
Chandelles	127

FAA APPROVED 5/22/72

REVISED

Placards

1. In Full View of the Pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL OR UTILITY CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

ALL MARKINGS AND PLACARDS ON THIS AIRPLANE APPLY TO ITS OPERATION AS A UTILITY CATEGORY AIRPLANE. FOR NORMAL AND UTILITY CATEGORY OPERATIONS, REFER TO THE AIRPLANE FLIGHT MANUAL.

NO ACROBATIC MANEUVERS ARE APPROVED FOR NORMAL CATEGORY OPERATIONS. SPINS ARE PROHIBITED FOR BOTH NORMAL AND UTILITY CATEGORIES."

2. In full view of the pilot, the following takeoff and landing checklists will be installed:

TAKEOFF CHECKLIST

Fuel on proper tank	Mixture set	Fasten belts/harness
Electric fuel pump on	Seat backs erect	Trim tab - set
Engine gauges checked		Controls - free
Flaps - set		Door - latched
Carb heat off		Air Conditioner - off

LANDING CHECKLIST

Fuel on proper tank		Flaps - set (115 mph)
Mixture rich	Seat backs erect	Fasten belts/harness
Electric fuel pump on		Air Conditioner - off

The "AIR COND OFF" item in the above takeoff and landing checklists is mandatory for air conditioned aircraft only.

3. In full view of the pilot, in the area of the air conditioner control panel when the air conditioner is installed:

"WARNING - AIR CONDITIONER MUST BE OFF TO INSURE NORMAL TAKEOFF CLIMB PERFORMANCE."

4. Adjacent to upper door latch: "ENGAGE LATCH BEFORE FLIGHT."

Placards (cont'd)

5. On inside of the baggage compartment door:
"BAGGAGE MAXIMUM 200 LBS."
"UTILITY CATEGORY OPERATION - NO BAGGAGE OR AFT PASSENGERS ALLOWED. NORMAL CATEGORY OPERATION - SEE AIRPLANE FLIGHT MANUAL WEIGHT AND BALANCE SECTION FOR BAGGAGE AND AFT PASSENGER LIMITATIONS."

6. In full view of the pilot:

"ROUGH AIR OR MANEUVERING SPEED - 127 MPH."

"UTILITY CATEGORY OPERATION - NO AFT PASSENGERS ALLOWED."

7. On the instrument panel in full view of the pilot when the oil cooler winterization kit is installed:

"OIL COOLER WINTERIZATION PLATE TO BE REMOVED WHEN AMBIENT TEMPERATURE EXCEEDS 50°F."

8. On the instrument panel in full view of the pilot when the autoflite is installed:

"FOR HEADING CHANGES: PRESS DISENGAGE SWITCH ON CONTROL WHEEL. CHANGE HEADING, RELEASE DISENGAGE SWITCH."

9. In full view of the pilot: "Utility Category Only."

Acrobatic maneuvers are limited to the following:

	Entry Speed
Steep Turns	127 mph
Lazy Eights	127
Chandelles	127

Placards (cont'd)

10. On the instrument panel in full view of the pilot when the AutoFlite II is installed:

"TURN AUTOFLITE ON. ADJUST TRIM KNOB FOR MINIMUM HEADING CHANGE. FOR HEADING CHANGE, PRESS DISENGAGE SWITCH ON CONTROL WHEEL, CHANGE HEADING, RELEASE SWITCH. ROTATE TURN KNOB FOR TURN COMMANDS. PUSH TURN KNOB IN TO ENGAGE TRACKER. PUSH TRIM KNOB IN FOR HI SENSITIVITY. LIMITATIONS: AUTOFLITE OFF FOR TAKEOFF AND LANDING."

11. On the instrument panel in full view of the pilot when the supplementary white strobe lights are installed:

"WARNING - TURN OFF STROBE LIGHTS WHEN TAXIING IN VICINITY OF OTHER AIRCRAFT, OR DURING FLIGHT THROUGH CLOUD, FOG OR HAZE."

Airspeed Instrument Markings

RED radial line	Never Exceed	171 mph (148 knots)
YELLOW arc	Caution Range (Smooth Air Only)	140 to 171 mph (121 to 148 knots)
GREEN arc	Normal Operating Range	68 to 140 mph (59 to 121 knots)
WHITE arc	Flap Down Range	61 to 115 mph (53 to 100 knots)

Air Conditioned Airplanes.

Air Conditioner must be off for takeoff and landing.

2. Procedures Section

1. The stall-warning system is inoperative with the master switch off.

2. Electric fuel pump must be on for both landing and takeoff.

3. The PA-28-180 airplane is approved under FAA Regulation CAR 3 which prohibits intentional spins for both normal and utility category operation. The following information is noteworthy:

   a. The stall characteristics of the PA-28-180 are normal with the nose pitching down moderately following the stall, occasionally with a moderate roll which can be corrected by normal use of ailerons and rudder against the roll.

Procedures Section (cont'd)

b. Prolonged use of full rudder during stall practice may result in a rapid roll followd by a spin and should be avoided. Recovery from an incipient spin may be effected in less than one additional turn by use of opposite rudder followed by full forward control wheel.

c. In the event that a fully developed spin is inadvertently experienced, recovery is best made by using full opposite rudder followed by full forward wheel and full opposite aileron. The control positions against the spin should be maintained during the entire recovery, which may require several turns and a substantial loss of altitude if the airplane is loaded heavily with a rearward center of gravity.

4. Except as noted above, all operating procedures for this airplane are normal.

5. (Electric Pitch Trim Installation Only with Pitch Trim Switch)

The following emergency information applies in case of electric pitch trim malfunction:

a. In case of malfunction, disengage electric pitch trim by pushing pitch trim switch on instrument panel to OFF position.

b. In an emergency, electric pitch trim may be overpowered using manual pitch trim.

c. In cruise configuration, malfunction results in 10^{o} pitch change and 200 ft. altitude variation.

d. In approach configuration, a malfunction can result in a 5^{o} pitch change and 50 ft. altitude loss.

6. (Autoflite Installation Only)

The following emergency information applies in case of autoflite malfunction:

a. In case of malfunction PRESS disconnect switch on pilot's control wheel.

b. Rocker switch on instrument panel - OFF.

c. Unit may be overpowered manually.

Procedures Section (cont'd)

d. In climb, cruise or descending flight an autopilot runaway, with a 3 second delay could result in a 50° bank, and 190 ft. altitude loss.

e. In approach configuration an autopilot runaway, with a 1 second delay could result in a 15° bank and 40 ft. altitude loss.

7. (AutoControl III Installation Only)

I. Limitations: Autopilot off during takeoff and landing.
AutoFlite use prohibited above 160 mph CAS.

II. Procedures:

a. Normal Operation

Refer to Manufacturer's Operation Manual

b. Emergency

1. In case of malfunction, turn off autopilot.

2. In emergency, autopilot may be overpowered manually.

3. In climb, cruise or descending flight an autopilot runaway, with a 3 second delay could result in 60° bank and 100 ft. altitude loss.

4. In approach configuration an autopilot runaway, with a 1 second delay could result in 10° bank and 10 ft. altitude loss.

8. (AutoFlite II Installation Only)

I. Limitations: AutoFlite off for takeoff and landing.
AutoFlite use prohibited above 160 mph CAS.

II. Procedures:

a. Normal Operation - Refer to Manufacturer's Operation Manual.

b. Emergency

1. In case of malfunction PRESS disconnect switch on pilot's control wheel.

2. Rocker switch on instrument panel - OFF.

Procedures Section (cont'd)

3. Autopilot may be overpowered manually.

4. In climb, cruise or descending flight an autopilot runaway, with a 3 second delay could result in 60° bank, and 190 ft. altitude loss.

5. In approach configuration an autopilot runaway, with a 1 second delay results in 15° bank and 40 ft. altitude loss.

9. (Air Conditioned Models Only)

Prior to takeoff, the air conditioner should be checked for proper operation as follows:

a. Check aircraft master switch on

b. (For aircraft serial numbers 7205092 through 7305071). Turn the air conditioner control switch to "AIR COND" - the "AIR COND DOOR OPEN" warning light will turn on, thereby indicating proper air conditioner condenser door actuation.

(For aircraft serial numbers 7305072 and up). Turn the air conditioner control switch to "ON" and the fan switch to one of the operating positions - the "AIR COND DOOR OPEN" warning light will turn on, thereby indicating proper air conditioner condenser door actuation.

c. Turn the air conditioner control switch to OFF - the "AIR COND DOOR OPEN" warning light will go out, thereby indicating the air conditioner condenser door is in the up position.

d. If the "AIR COND DOOR OPEN" light does not respond as specified above, an air conditioner system or indicator bulb malfunction is indicated and further investigation should be conducted prior to flight.

The above operational check may be performed during flight if an inflight failure is suspected.

10. Air Conditioned Models only: Warning - The air conditioner must be off to insure normal takeoff performance.

3. Performance Section

The following performance figures were obtained during FAA type tests and may be realized under conditions indicated with the airplane and engine in good condition and with average piloting technique. All performance is given for 2450 pounds.

Loss of altitude during stalls varied from 100 to 250 feet, depending on configuration and power.

Stalling speeds, in mph, power off, versus angle of bank (Calibrated Airspeed):

Angle of Bank	0	20	40	50	60
Flaps Up	68	70	78	85	96
Flaps Down	61	--	--	--	--

Air Conditioned Models only:

When the full throttle position is not used or in the event of a malfunction which causes the compressor to operate and the condenser door to remain extended, a decrease in rate of climb of as much as 100 fpm can be expected at all altitudes.

REPORT VB-439

WEIGHT & BALANCE DATA

AND

EQUIPMENT LIST

MODEL PA-28-180

DATE May 17, 1972

APPLICABLE TO SERIAL NUMBERS 28-7305001 THROUGH 28-7305601

AND SERIAL NUMBER 28-E13

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	All	Retyped Entire Report		
	1	Rephrased Empty Weight Definition		
	10	Replaced Altimeter 99009-2, -3, -4 or -5 with PS50008-2 or -3		
	13	Replaced Turn Coordinators 99001 and 99004 and Turn and Bank 99005 with Turn and Slip PS50030-2 or -3		
		Manifold Pressure Gauge changed from 99006 to PS50031-3 or -4		
	19	Corrected King KT76/78 and King KMA-20 Weights, Arms, and Moments	N. Tennant	3 AUG 1972
2	4	Corrected Graph of Flight Envelope	Moldovan	21 Aug. 1972
3	8	Corrected Engine, Fuel Pump, Oil Cooler and Air Filter Weights, Arms and Moments.		
	16	Corrected COMM Antenna Cable Arms and Moments,		
	16a	Added Page and Anti Static Kit	N. Tennant	30 NOV 1972
4	15	Added King KX-175, KN-73, KN-77 and KNI-520 Installations	N. Tennant	25 JAN 1973
5	15	Corrected KX-175 (2nd) Moment	N. Tennant	30 JAN 1973
6	TITLE	Added Serial Number Effectivity	N. Tennant	12 Sept. 1973
7	TITLE	Added Serial Number 28-E13	[signature]	14 May 1974

PREPARED	PIPER AIRCRAFT CORP.	Weight and Balance Data
CHECKED	Development Center, Vero Beach, Fla.	Model PA-28-180
APPROVED	REPORT VB-439	PAGE 1 Section 1

WEIGHT AND BALANCE DATA

MODEL PA-28-180 CHEROKEE

DUPLICATE

Airplane Serial Number 28-7305325

Registration Number _____

Date _____

AIRPLANE EMPTY WEIGHT

Item		Weight (lbs)	x C.G. Arm (Inches Aft of Datum)	= Moment (In-Lbs)
*Empty Weight	Actual / Computed			
Unusable Fuel (13-1/3 pints)		10.0	103.0	1030
Standard Empty Weight				
Optional Equipment				
Licensed Empty Weight				

*Empty weight is defined as dry empty weight (including paint and hydraulic fluid) plus 1.8 lbs. undrainable engine oil

AIRPLANE USEFUL LOAD

	(Gross Weight)	-	(Licensed Empty Weight)	= Useful Load
Normal Category:	(2450 lbs)	-	(lbs)	= lbs.
Utility Category:	(1950 lbs)	-	(lbs)	= lbs.

THIS LICENSED EMPTY WEIGHT, C.G. AND USEFUL LOAD FOR THE AIRPLANE AS DELIVERED FROM THE FACTORY. REFER TO APPROPRIATE AIRCRAFT RECORD WHEN ALTERATIONS HAVE BEEN MADE.

_____

C. G. RANGE AND WEIGHT INSTRUCTIONS

1. Add the weight of all items to be loaded to the licensed empty weight.
2. Use the loading graph to determine the moment of all items to be carried in the airplane.
3. Add the moment of all items to be loaded to the licensed empty weight moment.
4. Divide the total moment by the total weight to determine the C. G. location.
5. By using the figures of Item 1 and Item 4, locate a point on the C. G. range and weight graph. If the point falls within the C. G. envelope, the loading meets the weight and balance requirements.

SAMPLE LOADING PROBLEM (Normal Category)

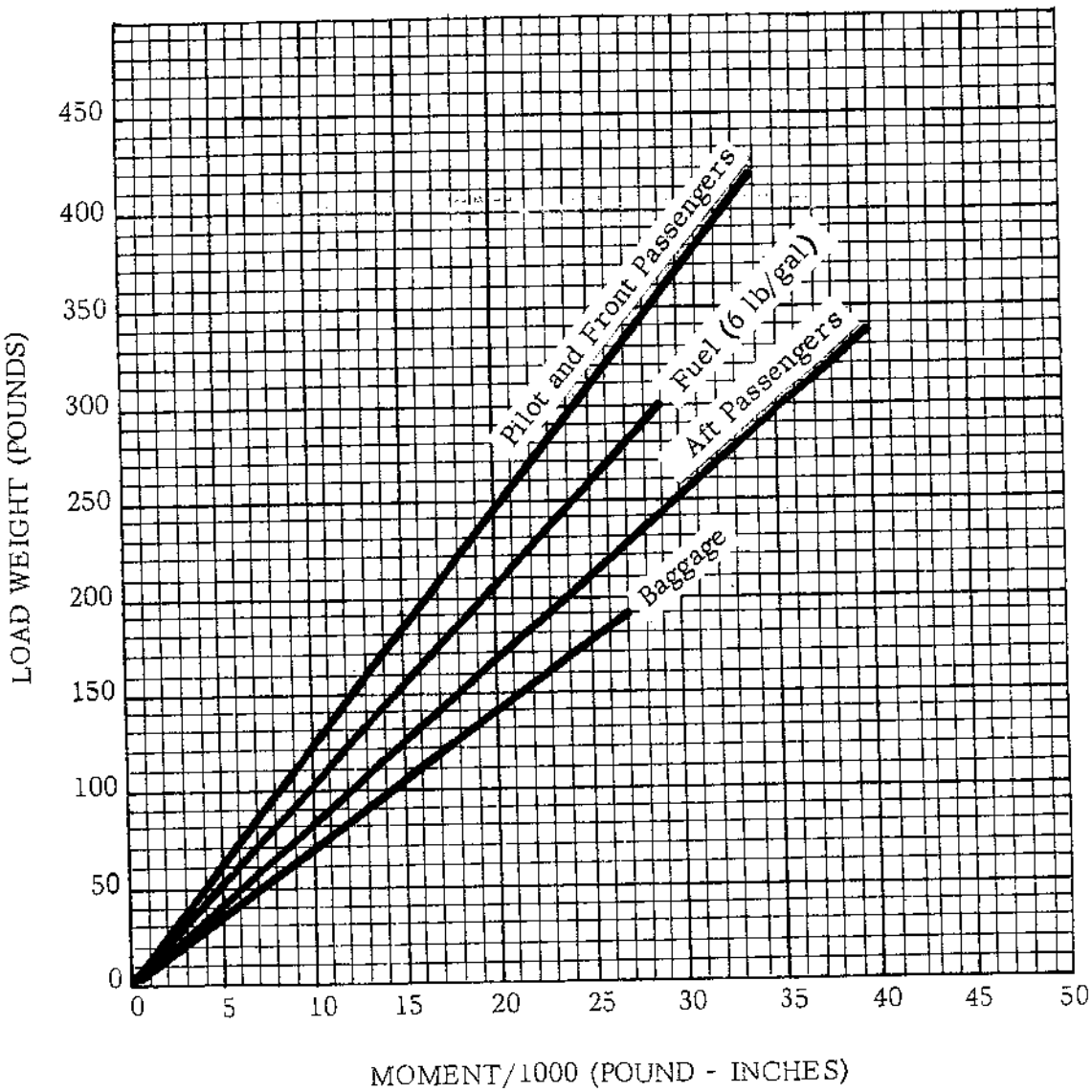
	Weight (lbs)	Arm Aft Datum (Inches)	Moment (In - lbs)
Licensed Empty Weight			
Oil (8 quarts)	15	27.5	413
Pilot and Front Passenger	340	80.5	27370
Passengers, Aft* (Rear Seat)	340	118.1	40154
Fuel (50 Gal. Maximum)		95.0	
Baggage *		142.8	
Total Loaded Airplane			

The center of gravity (C. G.) of this sample loading is at _____ inches aft of the datum line. Locate this point ( ) on the C. G. range and weight graph. Since this point falls within the weight - C. G. envelope, this loading meets the weight and balance requirements.

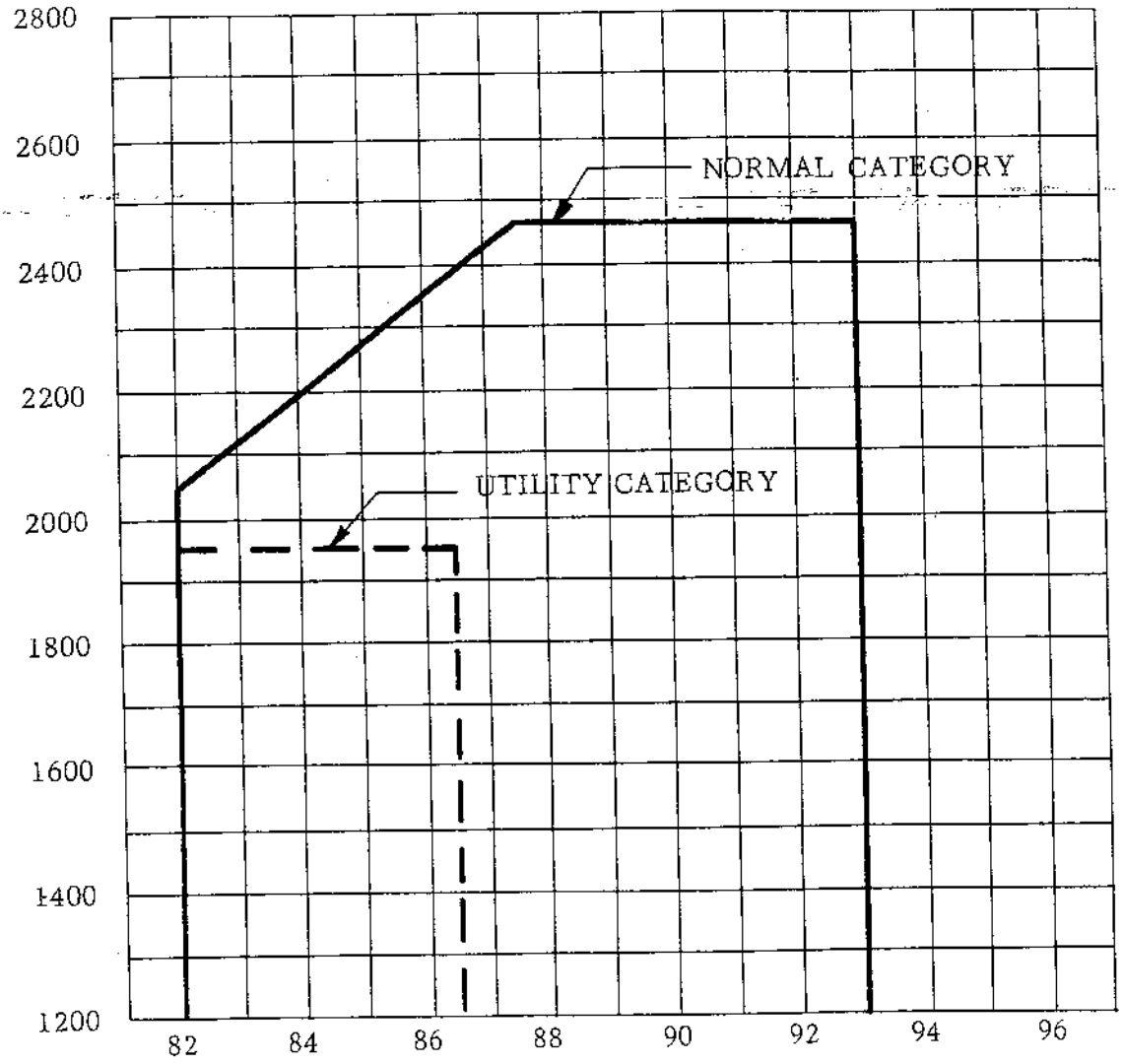
IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY.

* Utility Category Operation - No baggage or aft passengers allowed.

LOADING GRAPH



C.G. RANGE AND WEIGHT



WEIGHT AND BALANCE DATA

WEIGHING PROCEDURE

At the time of delivery, Piper Aircraft Corporation provides each airplane with the licensed empty weight and center of gravity location. This data is on Page 1, Section 1 of this report.

The removal or addition of an excessive amount of equipment or excessive airplane modifications can affect the licensed empty weight and empty weight center of gravity. The following is a weighing procedure to determine this licensed empty weight and center of gravity location:

1. PREPARATION

   a. Be certain that all items checked in the airplane equipment list are installed in the proper location in the airplane.

   b. Remove excessive dirt, grease, moisture, foreign items such as rags and tools from the airplane before weighing.

   c. Defuel airplane. Then open all fuel drains until all remaining fuel is drained. Operate engine on each tank until all undrainable fuel is used and engine stops.

   d. Drain all oil from the engine, by means of the oil drain, with the airplane in ground attitude. This will leave the undrainable oil still in the system. Engine oil temperature should be in the normal operating range before draining.

   e. Place pilot and co-pilot seats in fourth (4th) notch, aft of forward position. Put flaps in the fully retracted position and all control surfaces in the neutral position. Tow bar should be in the proper location and all entrance and baggage doors closed.

   f. Weigh the airplane inside a closed building to prevent errors in scale readings due to the wind.

2. LEVELING

   a. With airplane on scales, block main gear oleo pistons in the fully extended position.

   b. Level airplane (see diagram) by deflating nose wheel tire, to center bubble on level.

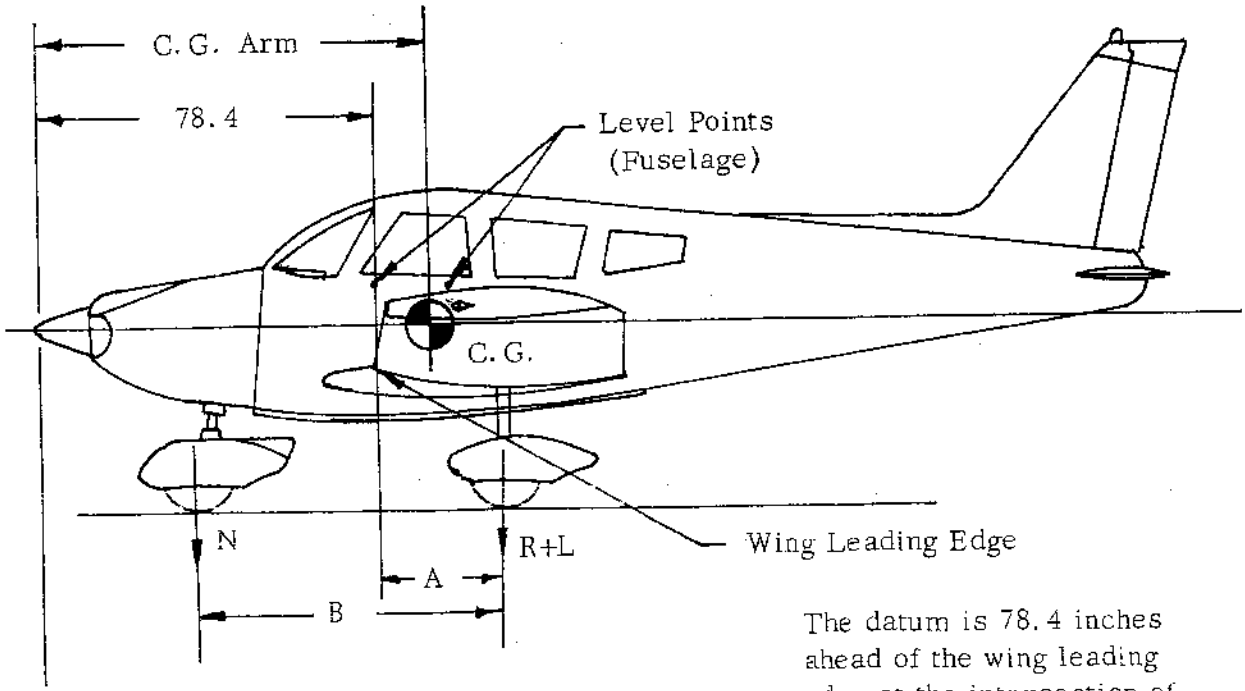
3. WEIGHING - AIRPLANE EMPTY WEIGHT

a. With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.

Scale Position and Symbol		Scale Reading	Tare	Net Weight
Nose Wheel	(N)			
Right Main Wheel	(R)			
Left Main Wheel	(L)			
Airplane Empty Weight, as Weighed (T)				

4. EMPTY WEIGHT CENTER OF GRAVITY

a. The following geometry applies to the PA-28-180 airplane when airplane is level (See Item 2).



The datum is 78.4 inches ahead of the wing leading edge at the intersection of the straight and tapered section.

A =

B =

b. Obtain measurement "A" by measuring from a plumb bob dropped from one wing leading edge, at the intersection of the straight and tapered section, horizontally and parallel to the airplane centerline, to the main wheel centerline.

c. Obtain measurement "B" by measuring the distance from the main wheel centerline, horizontally and parallel to the airplane centerline, to each side of nose wheel axle. Then average the measurements.

d. The empty weight center of gravity (as weighed including optional equipment and undrainable oil) can be determined by the following formula:

$$\text{C.G. Arm} = 78.4 + A - \frac{B(N)}{T}$$

$$\text{C.G. Arm} = 78.4 + (\quad) - \frac{(\quad)(\quad)}{(\quad)} = \quad \text{inches}$$

5. LICENSED EMPTY WEIGHT AND EMPTY WEIGHT CENTER OF GRAVITY

	Weight	Arm	Moment
Empty Weight (as weighed)			
Unusable Fuel (13-1/3 pints)	+10.0	103.0	+1030
Licensed Empty Weight			

WEIGHT AND BALANCE
STANDARD EQUIPMENT LIST
MODEL PA-28-180

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
_____	Engine - Lycoming Model 0-360-A4A	288.9	21.1	6096
_____	Fuel Pump, Electric Auxiliary, Bendix Model 478360	1.8	36.8	66
_____	Fuel Pump, Engine Driven, Lycoming Dwg. No. 73297, 74082, 75148 or 75246	1.7	36.3	62
_____	Oil Cooler, Piper Dwg., Harrision #C-8526250	1.9	41.3	78
_____	Air Filter, Fram Model CA-161 PL or Purolator AFP-2	.9	29.5	27
_____	Alternator, 60 Amp., Chrysler No. 2642997	12.5	14.0	175
_____	Starter-Lycoming 76211 (Prestolite MZ4206)*	18.0	14.5	261
	Propeller and Propeller Accessories			
_____	Propeller, Sensenich 76EM8S5-0-60	38.5	3.8	146
_____	Spinner and Attachment Plates	4.3	3.0	13

* Included in Engine Weight.

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Landing Gear and Brakes			
_____	Two Main Wheel Assemblies	32.3	109.6	3540
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-86 Brake Assembly No. 30-55			
	(b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes			
_____	One Nose Wheel 6.00-6	12.8	29.8	381
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-76B (Less Brake Drum)			
	(b) One Nose Wheel 4-Ply Rating Tire 6.00-6 with Regular Tube			
	Electrical Equipment			
_____	Stall Warning Device, Safe Flight Instrument Corporation No. C52207-4	.2	80.2	16
_____	Voltage Regulator, Wico Electric #X-16300B	.5	51.9	26
_____	Battery 12V, 25A.H., Rebat Model S-25	21.5	168.0	3612
_____	Overvoltage Relay, Wico Electric No. X16799	.5	55.4	28

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instrument			
_____	Compass - Piper Dwg. 67462	.9	59.9	54
_____	Airspeed Indicator, Piper Dwg. 63205-2	.6	61.8	37
_____	Tachometer, Piper Dwg. 62177-3	.7	61.2	43
_____	Altimeter, Piper PS50008-2 or -3	1.0	60.9	61
_____	Engine Cluster, Piper Dwg. 95241-4	.8	62.4	50
_____	Engine Cluster, Piper Dwg. 95241-2	.8	62.4	50
	Miscellaneous			
_____	Forward Seat Belts (2) .75 lbs. each	1.5	81.9	123
_____	Inertia Safety Belts (2) 0.9 lbs. each	1.8	119.6	215
_____	Rear Seat Belts (2) .70 lbs. each	1.4	123.0	172
_____	Rear Seats (2)	22.8	124.2	2832
_____	Flight Manual	---	---	---
_____	Tow Bar	1.3	161.8	210
_____	Nose Wheel Fairing - Piper Dwg. 65348	3.8	29.8	113
_____	Main Wheel Fairings - Piper Dwg. 65237	7.0	109.6	767

THE ABOVE ITEMS ARE INCLUDED IN THE AIRPLANE STANDARD EMPTY WEIGHT.

OPTIONAL EQUIPMENT LIST
MODEL PA-28-180

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
_____	Vacuum Pump, Airborne Mfg. Co. Model No. 10-113A1, 113A5, or 200cc and Drive	5.0	32.0	160
_____	Oil Filter - Lycoming No. 75528 (AC #OF5578770)	3.3	35.5	117
_____	Vacuum Regulator	.7	52.0	36
_____	Vacuum Filter	.3	52.0	16
	Electrical Equipment			
_____	Rotating Beacon, Grimes #40-0101-15-12	1.5	263.4	395
_____	Landing Light, G.E. Model 4509	.5	13.1	7
_____	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
_____	Navigation Light (Rear) (1) Grimes Model 2064 (White)	.2	281.0	56
_____	Battery 12V, 35 A.H. Rebat R-35 (Weight 27.0 lbs.)	5.5	* 168.0	924

*Weight and moment difference between standard and optional equipment.

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Electrical Equipment (continued)			
_____	Cabin Light	.3	99.0	30
_____	Cabin Speaker	.8	99.0	79
_____	Auxiliary Power Receptacle, Piper Dwg. 65647	2.7	178.5	482
_____	External Power Cable 62355-2	4.6	142.8	657
_____	Piper Pitch Trim	4.3	155.3	668
_____	Heated Pitot Head	.4	100.0	40
_____	Red Strobe Light, Whelen Engineering Co.			
_____	Power Supply, Whelen Model HS	2.3	198.0	455
_____	Light (Fin Tip)	.4	263.4	105
_____	Cable	.4	230.7	92
_____	Red/White Strobe Light, Whelen Engineering Co.			
_____	Power Supply, Whelen Model HD, T3	3.0	198.0	594
_____	Light (Fin Tip)	.4	263.4	105
_____	Cable	.4	230.7	92
_____	Lights (Wing Tip) (2)	.3	106.6	32
_____	Cables	2.0	115.6	231

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instruments			
_____	Suction Gauge, Piper Dwg. 99480-0 or -2	.5	62.2	31
_____	Vertical Speed, Piper Dwg. 99010-2, -4 or -5	1.0	60.9	61
_____	Attitude Gyro, Piper Dwg. 99002-2, -3, -4 or 05	2.2	59.4	131
_____	Directional Gyro, Piper Dwg. 99003-2, -3 -4, or -5	2.6	59.7	155
_____	Air Temperature Gauge, Piper Dwg. 99479 -0 or -2	.2	72.6	15
_____	Clock Piper Dwg. 99478	.4	62.4	25
_____	Tru-Speed Indicator, Piper Dwg. 62143-2 or -13	(Same as Standard Equipment Weight)		
_____	Turn and Slip Indicator, Piper PS50030-2 or -3	2.6	59.7	155
_____	Manifold Pressure Gauge, Piper PS50031-3 or -4	.9	60.8	55
_____	Exhuast Gas Temperature, Piper Dwg. 99026	.7	55.4	39

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	AutoPilots			
_____	Autocontrol III			
_____	Roll Servo, #1C363-1-183R	2.5	122.2	306
_____	Console, #1C338	1.2	60.1	72
_____	Cables	.7	95.5	67
_____	Attitude Gyro, #52D66	2.3	59.4	137
_____	Directional Gyro, #52D54	3.2	59.0	189
_____	Omni Coupler, #1C388	.9	59.3	53
_____	AutoFlite II			
_____	Roll Servo, #1C363-1-183R	2.5	122.2	306
_____	Cable	.7	93.4	65
_____	Panel Unit, #52D75-3 or -4	2.4	59.4	143

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio			
_____	Narco Mark 16 (VHF Comm/Nav)			
_____	Transceiver, Single	7.5	56.9	427
_____	Transceiver, Dual	15.0	56.9	854
_____	Narco VOA-50M Omni Converter	2.1	59.9	126
_____	Narco VOA-40 (M) Omni Converter	1.9	59.9	114
_____	Narco VOA-40 Omni Converter	1.9	59.9	114
_____	Narco Comm 10A VHF Transceiver	3.9	57.4	224
_____	Narco Comm 11A VHF Transceiver	3.6	57.4	207
_____	Narco Dual Comm 11A VHF Transceiver	7.1	57.4	408
_____	Narco Nav 10 VHF Receiver	1.9	58.6	111
_____	Narco Nav 11 VHF Receiver	2.8	58.6	164
_____	Narco Nav 12 VHF Receiver	3.4	58.6	199
_____	Narco Dual Nav 11 VHF Receiver	5.6	58.6	328
_____	King KX-175 VHF Transceiver	9.4	56.6	532
_____	King KN-73 Glideslope Receiver	3.2	184.3	590
_____	King KN-77 VOR/LOC Converter	3.4	183.6	661
_____	King KNI-520 VOR/ILS Indicator	1.7	60.5	103
_____	King KX-175 VHF Transceiver (2nd)	8.6	56.6	487
_____	King KN-77 VOR/LOC Converter	4.2	183.6	771
_____	King KNI-520 VOR/ILS Indicator	1.7	60.5	103

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (continued)			
_____	Genave 200A (VHF Comm/Nav)	5.9	57.7	340
_____	Genave 300 (VHF Comm/Nav)	5.9	57.7	340
_____	Genave Alpha 360	5.0	56.9	285
_____	Genave Theta 100	1.6	59.6	95
_____	King KX 170/175 ( ) (VHF Comm/Nav)			
_____	Transceiver, Single	7.5	56.6	425
_____	Transceiver, Dual	15.0	56.6	849
_____	King KI 201 ( ) VOR/LOC Ind.	2.5	59.6	149
_____	King Dual KI 201 ( ) VOR/LOC Ind.	5.0	59.9	300
_____	King KI 211 ( ) VOR/LOC/GS Ind.	3.3	59.9	198
_____	Nav Receiving Antenna	.5	265.0	133
_____	Cable, Nav Antenna	.9	157.0	141
_____	#1 VHF Comm Antenna	.3	157.8	47
_____	Cable, Antenna #1 VHF	.4	103.4	41
_____	#2 VHF Comm Antenna	.3	192.8	58
_____	Cable, Antenna #2 VHF	.5	120.9	60

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (continued)			
_____	Anti Static Kit			
_____	#1 VHF Comm Antenna	1.0	160.8	161
_____	Cable #1 VHF Comm Antenna	0.4	103.4	41
_____	#2 VHF Comm Antenna	1.0	195.8	196
_____	Cable #2 VHF Comm Antenna	0.5	120.9	60
_____	Low Frequency Antenna	0.5	147.5	74
_____	Static Wicks	------	-----	-----

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (continued)			
_____	Narco ADF-31			
_____	Panel Unit	5.0	58.5	293
_____	Sensor Unit	2.5	162.7	407
_____	Sensor Cable	2.3	100.6	231
_____	Sense Antenna and Cable	.4	150.0	60
_____	Bendix ADF-T-12C			
_____	Bendix ADF-T-12D			
_____	Receiver	3.5	59.4	208
_____	Audio Amplifier	.8	52.4	42
_____	Servo Indicator	1.7	60.9	104
_____	Loop Antenna	1.3	160.8	209
_____	Cable, Interconnecting	2.3	108.0	248
_____	Sense Antenna and Cable	.4	150.0	60
_____	King KR-85			
_____	Receiver	4.3	59.4	255
_____	Servo Indicator	1.2	61.3	74
_____	Loop Antenna	1.3	161.5	210
_____	Loop Cable	1.8	108.0	194
_____	Audio Amplifier	.8	51.0	41
_____	Sense Antenna and Cable	.4	150.0	60

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (continued)			
_____	PM-1 Marker Beacon			
_____	Receiver	1.1	121.3	133
_____	Remote Unit	.3	128.4	39
_____	Cable	.3	80.0	24
_____	UGR-2 Glide Slope			
_____	Receiver	2.4	173.8	417
_____	Cable	1.8	128.0	230
_____	Antenna	.4	87.4	35
_____	Cable, Antenna	.5	145.0	73
_____	Narco AT6-A Transponder			
_____	Panel Unit	2.0	59.4	119
_____	Remote Unit	5.7	203.0	1157
_____	Antenna and Cable	.3	197.0	59
_____	Cable, Interconnecting	.4	133.7	53

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (continued)			
_____	Narco AT50 Transponder			
_____	Panel Unit	* 3.0	57.3	172
_____	King KT76/78 Transponder			
_____	Panel Unit	3.1	58.1	180
_____	Antenna & Cable	---	--	---
_____	King KMA-20 Audio Panel	2.8	60.2	169
_____	Antenna	.5	116.3	58
_____	Cable	.4	87.5	35

* Weight includes Antenna and Cable

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (continued)			
_____	King KN60C DME			
_____	Receiver	6.8	56.7	386
_____	Antenna	.2	107.1	21
_____	Cable, Antenna	0.3	80.6	24
_____	Piper Automatic Locator			
_____	Transmitter	1.7	236.2	402
_____	Antenna and Cable	.2	224.4	45
_____	Shelf and Access Plate	.3	235.4	71
_____	Audio Selector Panel, Piper Dwg. 99395-0, -2, or -3	.7	61.3	43
_____	Microphone	.5	70.0	35
_____	Headset	.5	60.0	30
	Miscellaneous			
_____	Fire Extinguisher - Kidde Compact VI (with brackets)	5.3	71.0	376
_____	Toe Brakes (Dual)	10.5	49.6	521
_____	Toe Brakes (Single)	5.0	49.6	248
_____	Assist Step	1.8	156.0	281
_____	Inertia Safety Belts (Rear) (2) 0.8 lbs. each	1.6	140.3	224

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Miscellaneous (continued)			
_____	Lighter	.2	62.9	13
_____	Assist Strap and Coat Hook	.2	109.5	22
_____	Overhead Vent System	1.2	130.0	156
_____	Alternate Static Source	.4	61.0	24
	Calibrated Alternate Static Source			
	Placard Required: Yes _____ No _____			
_____	Headrest (2) (Front)	2.2	94.5	208
_____	Headrest (2) (Rear)	2.2	132.1	291
_____	Air Conditioning Installation 99575-0	67.4	102.8	6929
_____	Zinc Chromate Finish	5.0	158.0	790
	TOTAL OPTIONAL EQUIPMENT			

EXTERIOR FINISH

Base Color _____ Registration No. Color _____

Trim Color _____ Type Finish _____

Accent Color _____