

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT..... 834

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MODEL PA-18A "150"

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

MODEL PA-18 "150"

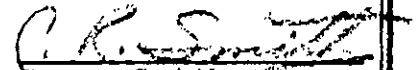
MODEL PA-18A "150"

REPORT NO. 834

AIRPLANE FLIGHT MANUAL - PIPER MODEL PA-18 "150"
AND PA-18A "150" (1750 POUNDS GROSS WEIGHT)

DATE: OCTOBER 1, 1954.

Prepared by:


C. R. Smith
Engineering Dept.

PREPARED.....

CHECKED.....

APPROVED.....

PIPER AIRCRAFT CORPORATION

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PA-18"150"
MODEL PA-18A"150"

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNSYLVANIA

MODEL PA-18"150"

Model PA-18A"150"

REPORT NO. 834

AIRPLANE FLIGHT MANUAL - PIPER MODEL
PA-18"150" AND PA-18A"150" (1750
POUNDS GROSS WEIGHT)

DATE: October 1, 1954

REV: April 20, 1959

October 24, 1963

April 9, 1964

September 30, 1974

REV: August 20, 1976

September 17, 1976

September 28, 1976

December 21, 1976

October 7, 1988

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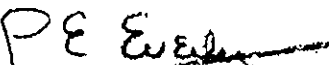
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LOG OF REVISIONS

<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
A	8	Alcor Alternator Added	9/30/74	<div style="text-align: right;">  Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1 </div>
B	7	Cleveland Model 20-119 Wheel-Brake Assembly, 6.00 x 6, 7.00 x 6 and 8.00 x 6 Tires Added	8/20/76	<div style="text-align: right;">  Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1 </div>
	8	Retyped and Rearranged		
C	7	Changed Weight of Cleveland Model 20-119 Wheel-Brake Assembly from 12.6 lbs. to 17.4 lbs.	9/17/76	<div style="text-align: right;">  Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1 </div>
D	1	Revise Static Limits	9/28/76	<div style="text-align: right;">  Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1 </div>
E		Cover Revision Dates Added	12/21/76	<div style="text-align: right;">  Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1 </div>
	i	Table of Contents Added		
	ii	Authorized Signatures Added		
F	9	Tow Hook Added	10/5/77	<div style="text-align: right;">  Paul E. Everly DOA Coordinator October 5, 1977 DOA EA-1 </div>

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<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
G	7	Vacuum Pump - Airborne Mechanisms 211CC Added under Engine and Engine Accessories		
	9	KS-2-SC Avionics Group Instl. per PAC Dwg. 09060 Added		
	10	NC-1-SC Avionics Group Instl. per PAC Dwg. 09062 and KS-1-SC Avionics Group Instl. per PAC Dwg. 09066 Added	10/14/77	Paul E. Everly DOA Coordinator October 14, 1977 DOA EA-1
H	10	KS-2-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09060-2 Added		
		R.C. Allen A2475-2 Electric Turn and Bank Added	11/15/77	Paul E. Everly DOA Coordinator November 15, 1977 DOA EA-1
I	10	KS-1-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09066-2 Added.	2/17/77	Paul E. Everly DOA Coordinator February 17, 1978 DOA EA-1
J	10	Emergency Locator Installation per PAC Dwg. 66081-2 Added.	10/10/78	Paul E. Everly DOA Coordinator October 10, 1978 DOA EA-1

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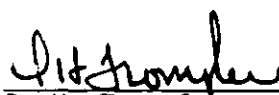
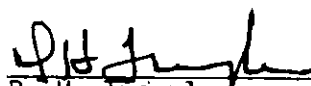
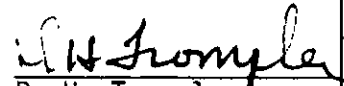
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<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
K	10	Added: Artificial Horizon, Outside Air Temp. Gauge, Eight Day Clock, Vertical Speed Indicator, Electric Fuel Gauge, Control Stick Lock and Dome Light	3/27/79	<i>Paul E Everly</i> Paul E. Everly DOA Coordinator March 27, 1979 DOA EA-1
L	10	Added: CTM-1-SC Avionics Group Instl. per PAC Dwg. 09370; KS-2-SC Avionics Group Instl. per PAC Dwg. 09353-2; KS-2-SC Avionics Group Instl. (with trans- ponder) per PAC Dwg. 09353-3	6/5/79	<i>Paul E Everly</i> Paul E. Everly DOA Coordinator June 5, 1979 DOA EA-1
M	2,3	Revised Maneuvers Permitted for Normal and Utility Category Operations	6/25/79	<i>Paul E Everly</i> Paul E. Everly DOA Coordinator June 25, 1979
N	3	Noise Level Data and Statement Added	8/30/79	
	3a Added	Section II. Procedures Moved From Pg. 3 to New Pg. 3a	8/30/79	<i>Paul E Everly</i> Paul E. Everly DOA Coordinator August 31, 1979 DOA EA-1
P	2	Baggage Compartment - Capacity - 50 Lbs. was Maximum baggage - 50 Lbs.	7/15/82	<i>Paul E Everly</i> Paul E. Everly DOA Coordinator July 15, 1982

PREPARED	PIPER AIRCRAFT CORP.	Airplane Flight Manual Model PA-18 "150" PA-18A "150"
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<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
Q	11	Added: NTC-1-18 Avionics Group Instl. per PAC Dwg. 06170-2; King KTS-1-18 Avionics Group Instl. per PAC Dwg. 06180-2; Narco Escort IIA Radio per PAC Dwg. 06192; King KY-97A Communications Transceiver per PAC Dwg. 06193-2; King KT-76A Transponder per PAC Dwg. 06194-2; Narco AT-150 Transponder per PAC Dwg. 06195-2; Narco AR-850 Altitude Reporter per PAC Dwg. 06179-2; Sigtronics Intercom Syst per CA Dwg. 18-3-071; Northstar Loran MI per CA Dwg. 18-2-095	9/15/88	 D. H. Trompler DOA Coordinator September 15, 1988 DOA SO-1
R	1	Changed C.A.A. Identification No. to read F.A.A. Identification No.	10/7/88	 D. H. Trompler DOA Coordinator October 7, 1988 DOA SO-1
S	1	Deleted Flap Position limitation	12/1/88	 D. H. Trompler DOA Coordinator December 1, 1988 DOA SO-1

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MODEL..... PA-18A"150"

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

C.A.A. Approved
Approval Basis CAR 3 and 410
October 1, 1954
PA-18"150"
PA-18A"150"
Normal and Utility Category

F.A.A. Identification No. _____

AIRPLANE FLIGHT MANUAL

1. Limitations

The following limitations must be observed in the operation of this airplane:

Engine	Lycoming O-320 Series
Engine Limits	For all operations 2700 RPM
Fuel	80/87 Octane Minimum Aviation Gasoline
Propeller	Sensenich M74DM or 74DM6 Fixed Pitch Metal 74.0" Maximum Diameter 72.5" Minimum Diameter
	Static Limits: Maximum 2450 Minimum 2350 (Not over 2550, not under 2450 when operating as a Glider or Banner Tow.)
Power Instruments	Oil Temperature-Unsafe if indicator exceeds Red Line (245 degrees F) or is below the Red Line (40 degrees F Min.) Yellow Arc: Caution (40 degrees to 120 degrees F). Green Arc: Normal Operating Range (120 degrees F to 245 degrees F). Oil Pressure-Unsafe if indicator exceeds Red Line (100 lbs.) or is below the Red Line (25 lbs. minimum) Yellow Arc: Caution (85 lbs. to 100 lbs) and (25 lbs. to 60 lbs.) Green Arc: Normal Operating Range (60 lbs. to 85 lbs.) Tachometer-Red Line: Rated Engine Speed Green Arc: 500 RPM to 2700 RPM Normal Operating Range

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Normal Category

Airspeed Limits

(True Ind. Airspeed)

Maneuvering	96 MPH 83 Knots
Max. Cruising Speed	121 MPH 106 Knots
Never Exceed	153 MPH 133 Knots
Flaps Extended	85 MPH 74 Knots

Flight Load Factors

Max. Positive	3.8
Max. Negative	(No inverted maneuvers approved)

Airplane Loading

Max. Wt. (Take-Off and Landing) 1750 Pounds

C.G. Range Normal Category, Aft Wing Leading Edge
(+14.0) to (+20.0) at 1750 pounds
(+10.5) to (+20.0) at 1300 pounds or less

Utility Category

(+12.3) to (+19.0) at 1500 pounds
(+10.5) to (+19.0) at 1300 pounds or less

Straight line variation between points given.

Datum Leading Edge of Wing

Max. Baggage Allowed 50 Pounds

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded (See Weight and Balance).

Placards:

The following placards must be displayed:

(a) On the instrument panel in full view of the pilot:

- (1) "Operate in Normal or Utility Category in compliance with Approved Flight Manual. Airplane marked for Normal Category. Acrobatics (including spins) prohibited in Normal Category."
- (2) "No Smoking"

(b) On the baggage compartment:

- (1) "Capacity - 50 Lbs."

Maneuvers:

- a. Stalls (except whip stalls), lazy eights, chandelles, and steep turns, in which the angle of bank is not more than 60°, are classified as nonacrobatic maneuvers and are permitted for Normal Category operation.
- b. Spins, lazy eights, chandelles, and steep turns, where the angle of bank is more than 60 degrees, and all of the maneuvers listed in a. above, are approved for operation in the Utility Category. Recommended entry speeds are shown:

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Maneuvers: (Cont'd.)

<u>Maneuver</u>	<u>Entry Speed T.I.A.S.</u>
Chandelles	100 MPH
Lazy Eights	100 MPH
Steep Turns	90 MPH
Spins	Stall
Stalls (except whip stalls)	Stall

c. Inverted flight and intentional spinning with flaps down are prohibited.

Airspeed
Instrument
Markings and
Their Significance

- (a) Radial Red line marks the never exceed speed which is the maximum safe airspeed 153 MPH. (133 Knots).
- (b) Yellow Arc on indicator denotes range of speed in which operations should be conducted with caution and only in smooth air at 121 MPH to 153 MPH (106 Knots to 133 Knots)
- (c) Green Arc denotes normal operating speed range 47 MPH - 121 MPH (38 Knots to 106 Knots)
- (d) White Arc denotes normal operating speed range with flaps extended 43 MPH-85 MPH (35 Knots to 74 Knots)

Noise Level:

The corrected noise level of this aircraft is 65.9 dB(a) determined at the maximum operating power of 2700 RPM. This data applies only to the Lycoming O-320 engine installation equipped with a Sensenich 74-DM-56 Propeller.

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into or out of, any airport.

The above statement notwithstanding, the noise level stated above verified by and approved by the Federal Aviation Administration in noise level test flights conducted in accordance with FAR 36 Appendix "F" Amendment #10, "Noise Standards: Aircraft Type and Airworthiness Certification." The aircraft noise is in compliance with all FAR 36 noise standards applicable to this type.

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MODEL PA-18A"150"

II. PROCEDURES

- (a) Except as noted above, all operating procedures for this airplane are conventional.

Approved:

Paul E. Everly

Paul E. Everly
D.O.A. Coordinator
D.O.A. EA-1

Date: August 31, 1979

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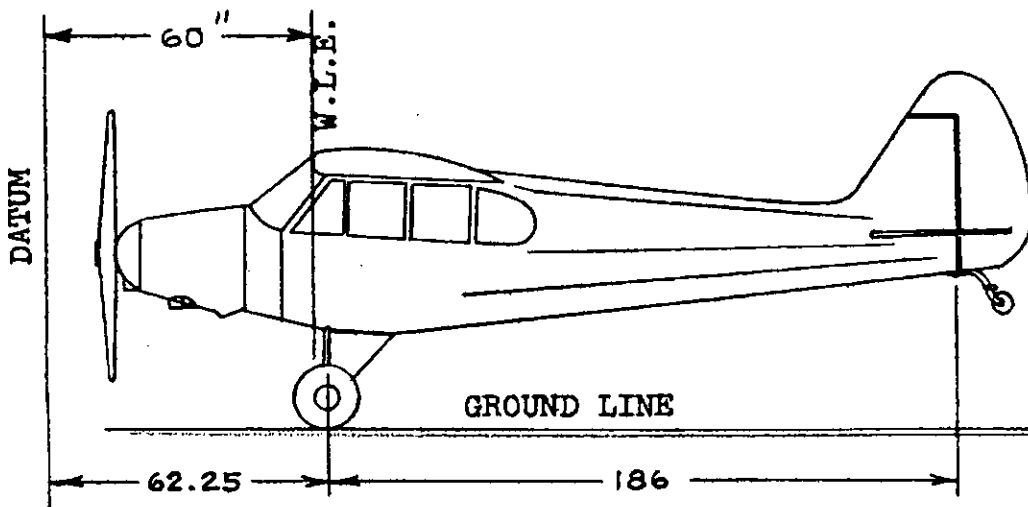
PA-18"150"
MODEL PA-18A"150"

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNSYLVANIA
ACTUAL WEIGHT AND BALANCE
MODEL PA-18"150", MODEL PA-18A"150"

SERIAL NO. 18-

CERTIFICATE NO. N

DATE



AIRPLANE WEIGHING DIAGRAM

Empty Weight as Weighed (Includes items checked on Pages 7, 8, & 9.)

	<u>Scale Reading</u>	<u>Tare</u>	<u>Net</u>
Left Wheel	_____	_____	_____
Right Wheel	_____	_____	_____
Tail Scale (N)	_____	_____	_____
Total (T)	_____	_____	_____

Revised: June 21, 1960.
November 15, 1960
August 23, 1963
August 28, 1963

580 820

PREPARED _____
CHECKED _____
APPROVED _____

August 12, 1974

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Empty Weight C.G. Aft Main Wheel Centerline is:

A. $\frac{186 \times (N)}{(T)}$ = _____ In.

Empty Weight C.G. Aft of Datum is:

B. 62.25 + A _____ = _____ In.

MOST FORWARD C.G. (NORMAL CATEGORY AND UTILITY CATEGORY)

Item	Weight	Arm	Moment
Empty Weight			
Oil (8 Qts.)	15	24	360
Fuel (12.5 Gal.) Wing	75	84	6300
Pilot and Chute (Front Seat)	<u>190</u>	<u>71</u>	<u>13490</u>

TOTAL

MOST FORWARD C.G. IS _____ IN. AFT OF WING L.E.

MOST REARWARD C.G. UTILITY CATEGORY

Item	Weight	Arm	Moment
Empty Weight			
Oil (8 Qts.)	15	24	360
Fuel () Wing		84	
Pilot and Chute (Front Seat)	190	71	13490
Passenger and Chute (rear Seat)	<u>190</u>	<u>97</u>	<u>18430</u>

TOTAL 1500

MOST REARWARD C.G. IS _____ IN. AFT OF WING L.E.

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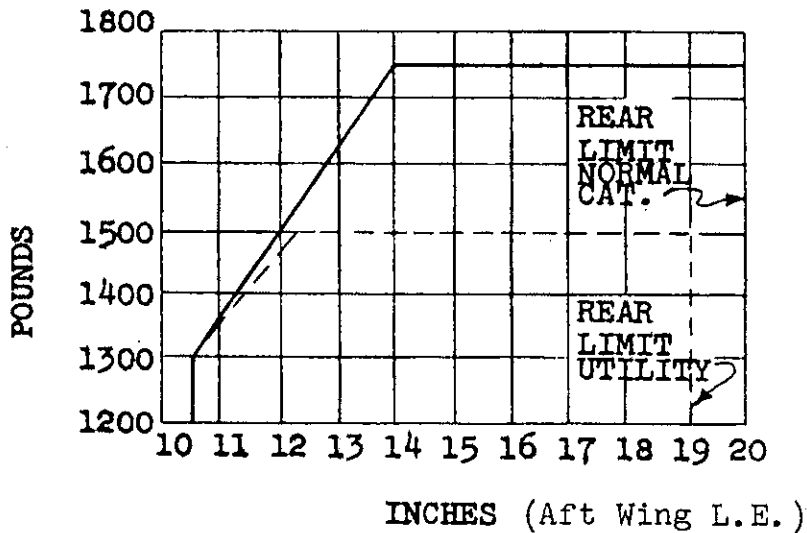
MOST REARWARD C. G. NORMAL CATEGORY

Item	Weight	Arm	Moment
Empty Weight			
Oil (8 Qts.)	15	24	360
Fuel (36 Gal.) Wing	216	84	18144
Pilot (Rear Seat)	170	97	16490
Baggage	50	117	5850

TOTAL

MOST REARWARD C. G. IS _____ IN. AFT WING L.E.

APPROVED C. G. RANGE VS. WEIGHT



Normal Category _____

Utility Category -----

PREPARED _____
 CHECKED _____
 APPROVED _____

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Revised:
11/6/61
8/23/63
9/10/65
2/21/66
11/12/68
8/20/76
9/17/76
10/14/77

ACTUAL WEIGHT AND BALANCE

MODEL PA-18"150", AND MODEL PA-18A"150"

EQUIPMENT LIST

<u>Item</u>	<u>Weight</u>	<u>Arm About W. L.E.</u>
<u>Propellers and Propeller Accessories</u>		
Propeller - Sensenich M74DM or 74DM6 Fixed Pitch Metal	30 lbs.	(-57)
a. Spinner Dome PAC Dwg. 14422 and Bulkhead Adaptors PAC Dwg. 14425 and 14424	2 lbs.	(-59)
<u>Engine and Engine Accessories</u>		
Vacuum Pump - Pesco Model 3P-194-F, Type B-11	4 lbs.	(-30)
Starter, Delco Remy 12V.	17 lbs.	(-48)
Starter Prestolite Model MZ-4204	17 lbs.	(-48)
Oil Cooler - Harrison No. AP13SJ03-01 or AP12CU03-01 PAC Dwg. 13724 or 14368	6 lbs.	(-53)
Vacuum Pump - Airborne Mechanisms 113A5 or 200CC	4 lbs.	(-30)
Vacuum Pump - Airborne Mechanisms 211CC	2 lbs.	(-30)
<u>Landing Gear</u>		
Two Main Wheel-Brake Assemblies 8.00 - 4, Type III	10 lbs.	(+2)
a. Goodrich Model No. 841A Wheel Assembly No. D-3-13A-1 Brake Assembly No. D-2-113		
Two Main 4-Ply Rating Tires, 8.00 - 4 Type III with regular tubes	21 lbs.	(+2)
Two Main Wheel-Brake Assemblies 6.00 x 6 Type III Cleveland Model 20-119	17.4 lbs.	(+2)
Two Main 6.00 x 6 4 ply Type III Tires with regular tubes	17 lbs.	(+2)
Two Main 7.00 x 6 6 ply Type III Tires with regular tubes	21 lbs.	(+2)
Two Main 8.00 x 6 4 ply Type III Tires with regular tubes	26 lbs.	(+2)
<u>Tail Wheels</u>		
a. Scott Model 3-24B 6.00	6 lbs.	(+200)
b. Scott Model 3200 8.00	+3 lbs.	(+200)
c. Maule Model SFS-1-4 6.00	6 lbs.	(+200)

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<u>Item</u>	<u>Weight</u>	<u>Arm About W. L.E.</u>
<u>Landing Gear (Continued)</u>		
Skis		Use Actual Wt. Change
a. Federal A-2000A Skis, Per Federal Dwg. 11R262		
EDO Model 89-2000 Floats with Water Rudder Installed in Accord- ance with EDO Dwg. No. 14390 and PAC Dwg. 14512		Use Actual Wt. Change
Scott Parking Brake Installation (Scott Aviation Corp., Lancaster, New York, Kit No. 2715 BK In- stallation in Accordance with their Bulletin I-169		
Wheel Streamlines	Neglect Wt. 6 lbs.	Change (+2)
Tandem Gear Model GW-100 In- stalled in Accordance with A.W. Whitaker, 5001 N.E. Union Ave., Portland, Oregon, Dwg. T-10 and Installation In- structions Dated June 8, 1949.	+46 lbs.	(+2)
<u>Electrical Equipment</u>		
Two Landing Lights, GE Model 4509 in W. L.E. PAC Dwg. 14442	4 lbs.	(+5)
a. Battery Reading R33 or R35 12 V. (PAC Dwg. 14241)	28 lbs.	(+84)
b. Battery Reading R33-12V (PAC Dwg. 14229)	28 lbs.	(+59)
Generator, Delco Remy. 12V., 20 Amp with Mounting Bracket	10.6 lbs.	(-49)
Generator, Delco Remy. 12V., 50 Amp with Mounting Bracket	16.6 lbs.	(-49)
Navigation Lights - Grimes	3 lbs.	(+65)
Alternator, Alco (PAC Dwg. 15500-2)	11 lbs.	(-49)
<u>Interior Equipment</u>		
<u>Flight Manual and Supplements</u>		
q. DMCR Approved Airplane Flight Manual Dated October 1, 1954, for Airplanes Equipped with Lycoming O-320 Engines.		
r. DMCR Approved Airplane Flight Manual Dated October 1, 1954, for Seaplanes Equipped with Lycoming O-320 Engines and EDO Model 89-2000 Floats.		
<u>Miscellaneous</u>		
Shoulder Harness Installation on Front and Rear Seats Per Piper Dwg. No. 12615		Use Actual Wt. Change

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<u>Item</u>	<u>Weight</u>	<u>Arm About W. L.E.</u>
<u>Miscellaneous Equipment</u>		
Primary Group	5.0 lbs.	(-9)
NARCO Super Homer	8.1 lbs.	(-13)
NARCO Omnigator and Power Supply	15.6 lbs.	(-5)
NARCO Simplexer and Power Supply	11.4 lbs.	(-5)
NARCO LFR-3L and Power Supply	6.2 lbs.	(-5)
Lear LTRA-6	11.6 lbs.	(-13)
Omni Antenna	1.9 lbs.	(+173)
Whip Antenna	.2 lbs.	(+15)
Marker Beacon Antenna	.5 lbs.	(+40)
Low Frequency Receiver Antenna	1.25 lbs.	(0)
LTRA-6 Dynamotor	7.25 lbs.	(+7)
Fire Extinguisher (With Bracket) Type A-20	8.0 lbs.	(+21)
Fire Extinguisher (With Bracket) #2 1/2 DCK	5.0 lbs.	(+21)
Venturi 4"	2.0 lbs.	(-12)
Venturi 2"	.5 lbs.	(-12)
Turn and Bank	2.0 lbs.	(-8)
Directional Gyro	4.0 lbs.	(-8)
Piper PTR-1 Installation	6.3 lbs.	(-12)
Piper PTR-1 and O-1 Omni Installation	8.8 lbs.	(-12)
Full Gyro Panel Inst.	10.1 lbs.	(-9)
Narco Mark III Installa- tion	8.0 lbs.	(-12)
Narco Mark VIII Installa- tion	8.0 lbs.	(-12)
Emergency Locator Installa- tion per PAC Dwg. #15319	2.0 lbs.	(+100)
Genave Alpha 200A or 300 Nav/Comm Installation per PAC Dwg. #15308	8.8 lbs.	(+26.8)
Tow Hook Installation per PAC Dwg. #60721	4.2 lbs.	(+128.5)
KS-2-SC Avionics Group Instl. per PAC Dwg. 09060	13.0 lbs.	(-0.3)

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<u>Item</u>	<u>Weight</u>	<u>Arm About W. L.E.</u>
<u>Miscellaneous Equipment (Continued)</u>		
NC-1-SC Avionics Group Instl. per PAC Dwg. 09062	10.0 lbs.	(+5.7)
KS-1-SC Avionics Group Instl. per PAC Dwg. 09066	7.3 lbs.	(+10.1)
KS-2-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09060-2	17.0 lbs.	(-0.7)
R.C.Allen A2475-2 Electric Turn and Bank	2.0 lbs.	(-11.0)
KS-1-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09066-2	10.8 lbs.	(+11.6)
Emergency Locator Installa- tion per PAC Dwg. 66081-2	4.2 lbs.	(+100)
Artificial Horizon (Air)	1.8 lbs.	(-14.5)
Outside Air Temp. Gauge	.2 lbs.	(-11.0)
Eight Day Clock	.3 lbs.	(-11.0)
Vertical Speed Ind.	.7 lbs.	(-11.0)
Electric Fuel Gauge	.2 lbs.	(-12.0)
Control Stick Lock	.5 lbs.	(-10.0)
Dome Light	.2 lbs.	(+24.0)
CTM-1-SC Avionics Group Instl. per PAC Dwg. 09370	9.8 lbs.	(+ 1.6)
KS-2-SC Avionics Group Instl. per PAC Dwg. 09353-2	12.0 lbs.	(+10.4)
KS-2-SC Avionics Group Instl. (with transponder) per PAC Dwg. 09353-3	15.0 lbs.	(+ 5.0)

PREPARED	PIPER AIRCRAFT CORP.	Airplane Flight Manual Model PA-18 "150" PA-18A "150"
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<u>Item</u>	<u>Weight</u>	<u>Arm About W. L.E.</u>
<u>Miscellaneous Equipment (Continued)</u>		
Narco NTC-1-18 Avionics Group Instl. per PAC Dwg. 06170-2	14.7 lbs.	(+14.5)
King KTS-1-18 Avionics Group Instl. per PAC Dwg. 06180-2	14.5 lbs.	(+14.0)
Narco Escort IIA Radio per PAC Dwg. 06192	7.0 lbs.	(+35.3)
King KY-97A Communications Transceiver per PAC Dwg. 06193-2	5.3 lbs.	(-1.02)
King KT-76A Transponder per PAC Dwg. 06194-2	4.3 lbs.	(-3.14)
Narco AT-150 Transponder per PAC Dwg. 06195-2	3.8 lbs.	(+1.3)
Narco AR-850 Altitude Reporter per PAC Dwg. 06179-2	0.9 lbs.	(-23.0)
Sigtronics Intercom Syst. per CA Dwg. 18-3-071	0.28 lbs.	(-8.5)
Northstar Loran M1 per CA Dwg. 18-2-095	5.18 lbs.	(-8.5)