



**I. Model R22 Helicopter (Normal Category), Approved March 16, 1979, (cont'd)**

|                                   |  |
|-----------------------------------|--|
| Maximum Gross Weight              | 1300 lb.   |
| Number of Seats                   | 2 (See NOTE 1)   |
| Minimum Weight                    | 920 lb.  |
| Maximum Baggage                   | 50 pounds of baggage and installed equipment in either baggage compartment, except combined seat load plus baggage and equipment not to exceed 240 pounds. |
| Fuel Capacity                     | 19.8 Gal. (19.2 Usable) at STA 108.6   |
| Oil Capacity                      | Engine Oil, 1.5 Gal. at STA 104.8;<br>Transmission oil, 0.3 Gal. at STA 100.   |
| Rotor Blade and Control Movements | For rigging information refer to R22 Maintenance Manual.   |
| Serial Nos. Eligible              | 0002 thru 0300<br>0302 thru 0349<br>0352 thru 0356   |

**II. Model R22 ALPHA Helicopter (Normal Category), Approved October 12, 1983**

| Engine                           | Lycoming O-320-B2C  |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
|----------------------------------|---|-------------------------|------------------------|------------------------|----------------|-----------------------|-----------------------|--|--|------|------|-------|--------|------|------|--|--|------|--|--|--------|------|--|-------|-------|-------|------|--|--|-------|------|-------|--------|
| Fuel                             | 91/96 UL minimum grade aviation gasoline<br>100 LL minimum grade aviation gasoline<br>100/130 minimum grade aviation gasoline   |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| Engine Limits for all operations | Maximum rpm 2652 (124 hp) (104%)<br>See RFM for maximum manifold pressure corresponding to 124 hp.<br>See RFM for altitude limitations.   |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| Rotor Speed Limits               | <table border="1"> <thead> <tr> <th>Power Off (Rotor Tach.)</th> <th>Power On (Rotor Tach.)</th> </tr> </thead> <tbody> <tr> <td>Maximum (110%) 561 rpm</td> <td>(104%) 530 rpm</td> </tr> <tr> <td>Minimum (90%) 459 rpm</td> <td>(97%) 495 rpm</td> </tr> </tbody> </table>   | Power Off (Rotor Tach.) | Power On (Rotor Tach.) | Maximum (110%) 561 rpm | (104%) 530 rpm | Minimum (90%) 459 rpm | (97%) 495 rpm         |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| Power Off (Rotor Tach.)          | Power On (Rotor Tach.)  |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| Maximum (110%) 561 rpm           | (104%) 530 rpm  |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| Minimum (90%) 459 rpm            | (97%) 495 rpm   |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| Airspeed Limits (CAS)            | V <sub>NE</sub> (never exceed) Power On and Power Off 98 KCAS sea level to 3,000 feet density altitude, decreasing to 83 KCAS at 8,000 feet density altitude, decreasing to 56 KCAS at 14,000 feet density altitude. Straight line variation between points.  |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| Altitude Limits                  | Density Altitude Limit - 14,000 feet  |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| CG Range                         | <table border="1"> <thead> <tr> <th>Longitudinal CG</th> <th>GW</th> <th colspan="2">Lateral CG</th> </tr> </thead> <tbody> <tr> <td></td> <td>Minimum 920 pounds to</td> <td></td> <td></td> </tr> <tr> <td>95.5</td> <td>1275</td> <td>+1.0R</td> <td>- 0.8L</td> </tr> <tr> <td>96.5</td> <td>1370</td> <td></td> <td></td> </tr> <tr> <td>97.0</td> <td></td> <td></td> <td>- 2.2L</td> </tr> <tr> <td>98.0</td> <td></td> <td>+2.6R</td> <td>-2.2L</td> </tr> <tr> <td>100.0</td> <td>1370</td> <td></td> <td></td> </tr> <tr> <td>102.0</td> <td>1175</td> <td>+1.2R</td> <td>- 0.5L</td> </tr> </tbody> </table> | Longitudinal CG         | GW                     | Lateral CG             |                |                       | Minimum 920 pounds to |  |  | 95.5 | 1275 | +1.0R | - 0.8L | 96.5 | 1370 |  |  | 97.0 |  |  | - 2.2L | 98.0 |  | +2.6R | -2.2L | 100.0 | 1370 |  |  | 102.0 | 1175 | +1.2R | - 0.5L |
| Longitudinal CG                  | GW  | Lateral CG              |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
|                                  | Minimum 920 pounds to   |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| 95.5                             | 1275  | +1.0R                   | - 0.8L                 |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| 96.5                             | 1370  |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| 97.0                             |   |                         | - 2.2L                 |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| 98.0                             |   | +2.6R                   | -2.2L                  |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| 100.0                            | 1370  |                         |                        |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |
| 102.0                            | 1175  | +1.2R                   | - 0.5L                 |                        |                |                       |                       |  |  |      |      |       |        |      |      |  |  |      |  |  |        |      |  |       |       |       |      |  |  |       |      |       |        |

Straight Line Variation Between Points shown. See Figure 2.

If empty weight CG arm (moment/empty weight) is greater than 104.8, fixed ballast must be installed in the helicopter's nose at F.S. 38.0 to allow a minimum solo pilot weight of 130 pounds. (Minimum pilot weight with auxiliary fuel tank is 135 pounds.)

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**II. Model R22 ALPHA Helicopter (Normal Category), Approved October 12, 1983, (cont'd)**


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|                                   |  |
|-----------------------------------|--|
| Maximum Gross Weight              | 1370 lb.   |
| Number of Seats                   | 2 (Pilot Location STA 78.0)  |
| Minimum Weight                    | 920 lb.  |
| Maximum Baggage                   | 50 pounds of baggage and installed equipment in either baggage compartment, except combined seat load plus baggage and equipment not to exceed 240 pounds. |
| Fuel Capacity                     | Main Tank: 19.8 Gals. (19.2 Usable) at STA 108.6<br>Optional Auxiliary Tank: 10.9 Gals. (10.5 Usable) at STA 103.8   |
| Oil Capacity                      | Engine oil, 1.5 Gals. at STA 104.8;<br>Transmission oil, 0.3 Gal. at STA 100.  |
| Rotor Blade and Control Movements | For rigging information refer to R22 Maintenance Manual.   |
| Serial Nos. Eligible              | 0301, 0350, 0351, 0357 thru 0500, excluding 0364   |

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**III. Model R22 BETA Helicopter (Normal Category), Approved August 12, 1985**


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The R22 BETA Helicopter includes a 131 hp. takeoff rating. A larger oil cooler and associated installation changes were made to permit the 131 hp. takeoff rating with the O-320 engine.

| Engine   | Lycoming O-320-B2C or O-360-J2A (See NOTE 11)  |  |                                     |                                     |                        |                |                |                       |               |                |
|--|--|--|-------------------------------------|-------------------------------------|------------------------|----------------|----------------|-----------------------|---------------|----------------|
| Fuel   | 91/96 UL minimum grade aviation gasoline<br>100 LL minimum grade aviation gasoline<br>100/130 minimum grade aviation gasoline  |  |                                     |                                     |                        |                |                |                       |               |                |
| Engine Limits for all operations                   | Maximum continuous (124 hp.) 2652 rpm (104%)<br>Takeoff (5 minutes) (131 hp.) 2652 rpm (104%)<br>See RFM for maximum manifold pressure corresponding to hp. rating and ambient conditions. See RFM for altitude limitations.   |  |                                     |                                     |                        |                |                |                       |               |                |
| Rotor Speed Limits                                 | <table border="1"> <thead> <tr> <th>Power Off (Rotor Tach) for O-320-B2C and O-360-J2A</th> <th>Power On (Rotor Tach) for O-320-B2C</th> <th>Power On (Rotor Tach) for O-360-J2A</th> </tr> </thead> <tbody> <tr> <td>Maximum (110%) 561 rpm</td> <td>(104%) 530 rpm</td> <td>(104%) 530 rpm</td> </tr> <tr> <td>Minimum (90%) 459 rpm</td> <td>(97%) 495 rpm</td> <td>(101%) 515 rpm</td> </tr> </tbody> </table> | Power Off (Rotor Tach) for O-320-B2C and O-360-J2A | Power On (Rotor Tach) for O-320-B2C | Power On (Rotor Tach) for O-360-J2A | Maximum (110%) 561 rpm | (104%) 530 rpm | (104%) 530 rpm | Minimum (90%) 459 rpm | (97%) 495 rpm | (101%) 515 rpm |
| Power Off (Rotor Tach) for O-320-B2C and O-360-J2A | Power On (Rotor Tach) for O-320-B2C  | Power On (Rotor Tach) for O-360-J2A                |                                     |                                     |                        |                |                |                       |               |                |
| Maximum (110%) 561 rpm                             | (104%) 530 rpm   | (104%) 530 rpm                                     |                                     |                                     |                        |                |                |                       |               |                |
| Minimum (90%) 459 rpm                              | (97%) 495 rpm  | (101%) 515 rpm                                     |                                     |                                     |                        |                |                |                       |               |                |
| Airspeed Limits (CAS)                              | V <sub>NE</sub> (never exceed) Power On and Power Off 98 KCAS sea level to 3,000 feet density altitude, decreasing to 83 KCAS at 8,000 feet density altitude, decreasing to 56 KCAS at 14,000 feet density altitude. Straight line variation between points.   |  |                                     |                                     |                        |                |                |                       |               |                |
| Altitude Limits                                    | Density Altitude Limit - 14,000 feet   |  |                                     |                                     |                        |                |                |                       |               |                |

**III. Model R22 BETA Helicopter (Normal Category), Approved August 12, 1985, (cont'd)**

| CG Range | Longitudinal CG | GW   | Lateral CG            |        |
|----------|-----------------|------|-----------------------|--------|
|          |                 |      | Minimum 920 pounds to |        |
|          | 95.5            | 1275 | +1.0R                 | - 0.8L |
|          | 96.5            | 1370 |                       |        |
|          | 97.0            |      |                       | - 2.2L |
|          | 98.0            |      | +2.6R                 | -2.2L  |
|          | 100.0           | 1370 |                       |        |
|          | 102.0           | 1175 | +1.2R                 | - 0.5L |

Straight Line Variation Between Points shown. See Figure 2.

If empty weight CG arm (moment/empty weight) is greater than 104.8, fixed ballast must be installed in the helicopter's nose at F.S. 38.0 to allow a minimum solo pilot weight of 130 pounds. (Minimum pilot weight with auxiliary fuel tank is 135 pounds.)

|                                   |  |
|-----------------------------------|--|
| Maximum Gross Weight              | 1370 lb.   |
| Number of Seats                   | 2 (Pilot Location STA 78.0)  |
| Minimum Weight                    | 920 lb.  |
| Maximum Baggage                   | 50 pounds of baggage and installed equipment in either baggage compartment, except combined seat load plus baggage and equipment not to exceed 240 pounds. |
| Fuel Capacity                     | Main Tank: 19.8 Gal. (19.2 Usable) at STA 108.6<br>Optional Auxiliary Tank: 10.9 Gal. (10.5 Usable) at STA 103.8   |
| Oil Capacity                      | Engine oil, 1.5 Gal. at STA 104.8;<br>Transmission oil, 0.3 Gal. at STA 100.   |
| Rotor Blade and Control Movements | For rigging information refer to R22 Maintenance Manual.   |
| Serial Nos. Eligible              | 0501 and subsequent  |

**IV. Model R22 MARINER Helicopter (Normal Category), Approved September 12, 1985**

The R22 MARINER helicopter includes two inflatable floats, additional corrosion protection, 131 hp. takeoff rating, tailcone with nose-up horizontal stabilizer mounting angle and float stabilizer in place of the tail skid. The helicopter can be used with or without floats. (See NOTE 9)

|                                  |  |
|----------------------------------|--|
| Engine                           | Lycoming O-320-B2C or O-360-J2A (See NOTE 11)  |
| Fuel                             | 91/96 UL minimum grade aviation gasoline<br>100 LL minimum grade aviation gasoline<br>100/130 minimum grade aviation gasoline  |
| Engine Limits for all operations | Maximum continuous (124 hp.) 2652 rpm (104%)<br>Takeoff (5 minutes) (131 hp.) 2652 rpm (104%)<br>See RFM for maximum manifold pressure corresponding to hp. Rating and ambient conditions. See RFM for altitude limitations. |

**IV. Model R22 MARINER Helicopter (Normal Category), Approved September 12, 1985, (cont'd)**

|                    |  |   |  |
|--------------------|--|---|--|
| Rotor Speed Limits | Power Off (Rotor Tach) for<br>O-320-B2C and O-360-J2A<br>Maximum (110%) 561 rpm<br>Minimum (90%) 459 rpm | Power On (Rotor Tach) for<br>O-320-B2C<br>(104%) 530 rpm<br>(97%) 495 rpm | Power On (Rotor Tach) for<br>O-360-J2A<br>(104%) 530 rpm<br>(101%) 515 rpm |
|--------------------|--|---|--|

Airspeed Limits (CAS)

With Floats Installed

V<sub>NE</sub> (never exceed) Power On 91 KCAS sea level to 3,000 feet density altitude, decreasing to 77 KCAS at 7,500 feet density altitude, decreasing to 50 KCAS at 14,000 feet density altitude. Straight line variation between points.

V<sub>NE</sub> (never exceed) Power Off 77 KCAS sea level to 7,500 feet density altitude, decreasing to 50 KCAS at 14,000 feet density altitude. Straight line variation between points.

Without Floats Installed

V<sub>NE</sub> (never exceed) Power On and Power Off 98 KCAS sea level to 3,000 feet density altitude, decreasing to 83 KCAS at 8,000 feet density altitude, decreasing to 56 KCAS at 14,000 feet density altitude. Straight line variation between points.

Altitude Limits

Density Altitude Limit - 14,000 feet

CG Range with Floats Installed

| Longitudinal CG | GW                    | Lateral CG |        |
|-----------------|-----------------------|------------|--------|
|                 | Minimum 920 pounds to |            |        |
| 95.5            | 1275                  | +1.0R      | - 0.8L |
| 96.5            | 1370                  |            |        |
| 97.0            |                       |            | - 2.2L |
| 98.0            |                       | +2.6R      | -2.2L  |
| 100.0           | 1370                  |            |        |
| 101.0           | 1207                  | +1.3R      | - 1.0L |

CG Range without Floats Installed

| Longitudinal CG | GW                    | Lateral CG |        |
|-----------------|-----------------------|------------|--------|
|                 | Minimum 920 pounds to |            |        |
| 95.5            | 1275                  | +1.0R      | - 0.8L |
| 96.5            | 1370                  |            |        |
| 97.0            |                       |            | - 2.2L |
| 98.0            |                       | +2.6R      | -2.2L  |
| 100.0           | 1370                  |            |        |
| 101.5           | 1125                  | +1.1R      | - 0.8L |

Straight Line Variation Between Points shown. See Figure 3.

Maximum Gross Weight

1370 lb.

Number of Seats

2 (Pilot Location STA 78.0)

Minimum Weight

920 lb.

Maximum Baggage

50 pounds of baggage and installed equipment in either baggage compartment, except combined seat load, plus baggage and equipment not to exceed 240 pounds.

Fuel Capacity

Main tank: 19.8 Gal. (19.2 Usable) at STA 108.6  
Optional Auxiliary Tank: 10.9 Gal (10.5 Usable) at STA 103.8

Oil Capacity

Engine oil, 1.5 Gal. at STA 104.8;  
Transmission oil, 0.3 Gal. at STA 100.

**IV. Model R22 MARINER Helicopter (Normal Category), Approved September 12, 1985, (cont'd)**

Rotor Blade and Control Movements For rigging information refer to R22 Maintenance Manual.

Serial No. Eligible 0364, 0501 and subsequent (Suffix "M" added to all MARINERs.)

DATA PERTINENT TO ALL MODELS

Datum 100 inches forward of main rotor centerline.

Leveling Means Refer to the Weight and Balance Section of the R22 Rotorcraft Flight Manual.

Certification Basis 14 CFR Part 27 dated February 1, 1965, including Amendments 27-1 through 27-10. § 27.1559 of Amendment 27-21 is an option for all S/Ns.

National Environmental Act of 1969

Noise Control Act of 1972

Equivalent Safety Finding:

Number TD10352LA-R/S-1

14 CFR Part 27.1401(d), Anticollision Light System

Production Basis Production Certificate No. 424WE, dated March 6, 1981

Equipment The basic required equipment as prescribed in the applicable airworthiness regulations (See Certification Basis) must be installed in the helicopter for certification. In addition, the following FAA-approved Rotorcraft Flight Manual is required:

R22

R22 Rotorcraft Flight Manual dated March 16, 1979, or later revision.

R22 ALPHA

R22 Rotorcraft Flight Manual dated March 16, 1979, with revisions through October 12, 1983 or later (see NOTE 8).

R22 BETA with O-320-B2C

R22 Rotorcraft Flight Manual dated March 16, 1979, with revisions through August 7, 1985 or later (see NOTE 8).

R22 BETA with O-360-J2A

R22 Rotorcraft Flight Manual dated March 16, 1979, with revisions through August 7, 1985 or later. For R22 Rotorcraft Flight Manual with revisions prior to October 13, 2000, Flight Manual Supplement 7 dated January 31, 1996, or later revision, is required (see NOTE 8).

R22 MARINER with O-320-B2C

R22 Rotorcraft Flight Manual dated March 16, 1979, with revisions through August 7, 1985 or later, and Flight Manual Supplement 4 dated September 9, 1985, or later revision.

R22 MARINER with O-360-J2A

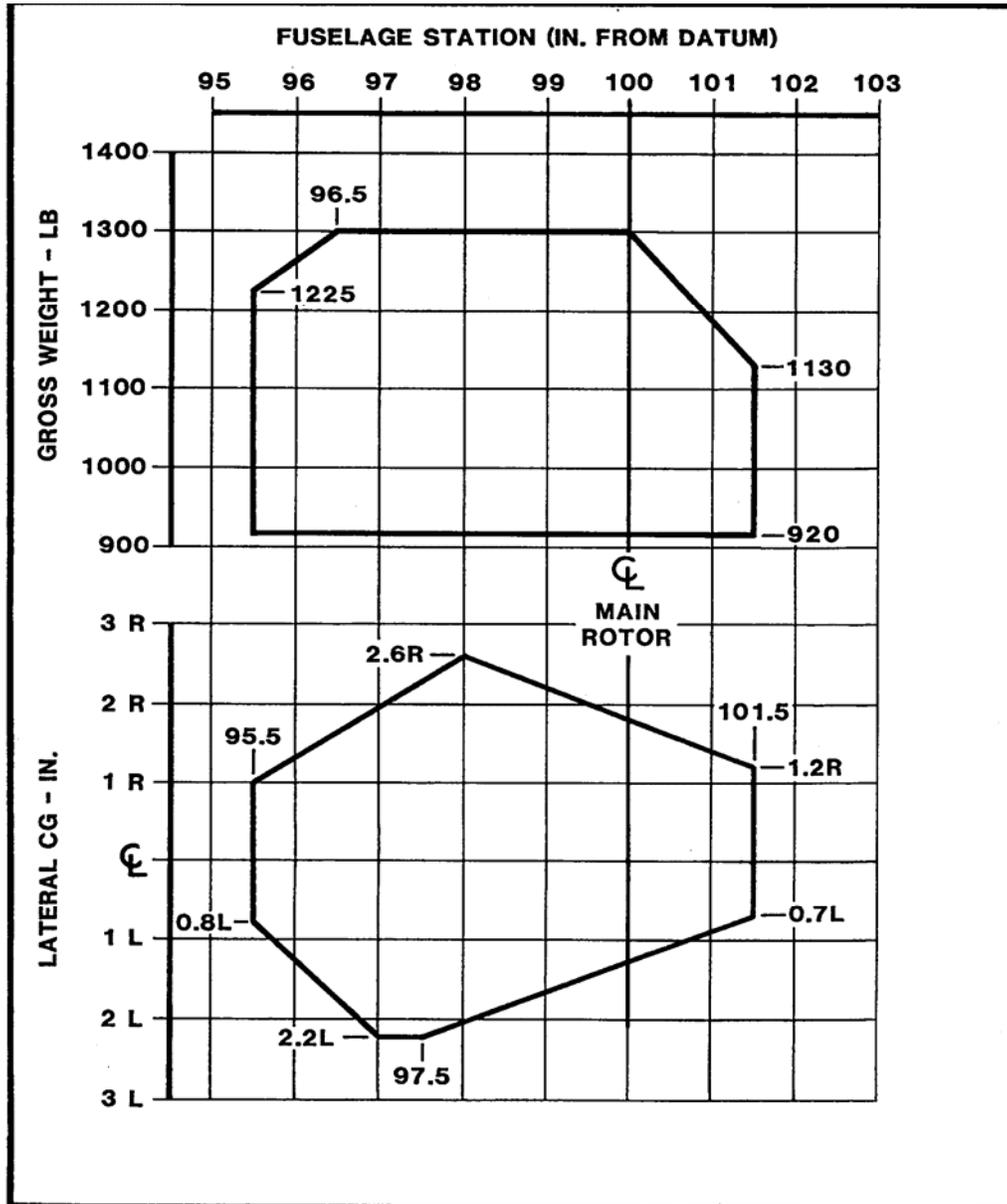
R22 Rotorcraft Flight Manual dated March 16, 1979, with revisions through August 7, 1985 or later, and Flight Manual Supplement 4 dated September 9, 1985, with revisions through October 13, 2000 or later. For R22 Rotorcraft Flight Manual with revisions prior to October 13, 2000, Flight Manual Supplement 8 dated January 31, 1996, or later revision, is required in place of Flight Manual Supplement 4.

## GENERAL NOTES

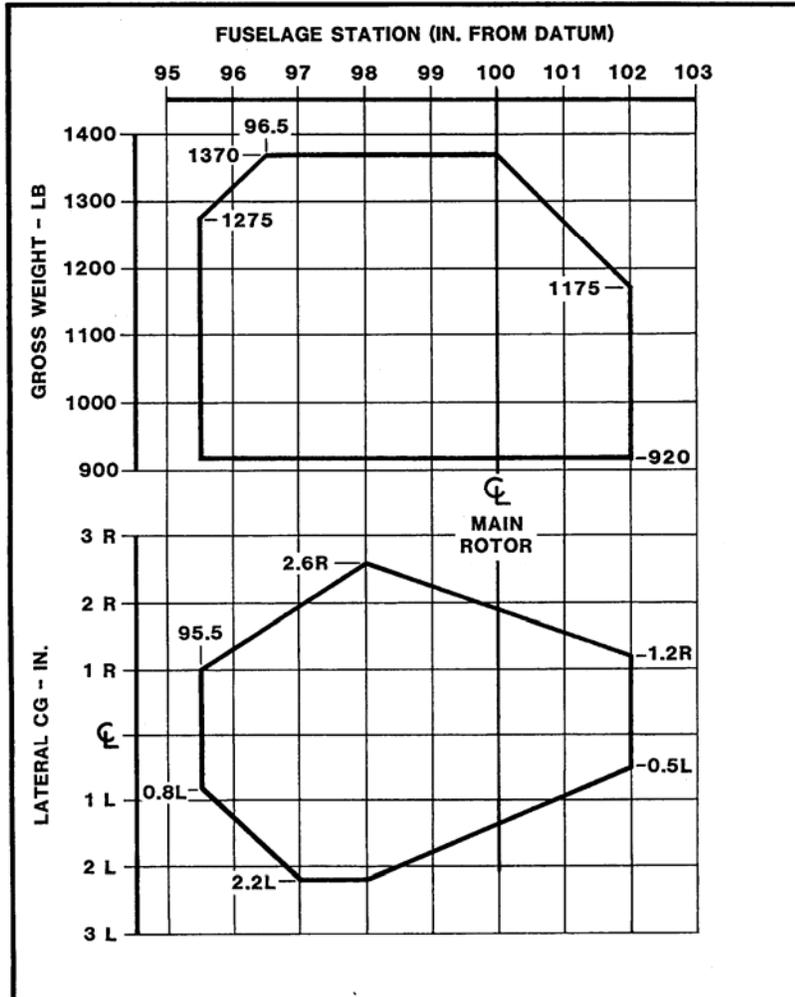
- NOTE 1. Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions, when necessary, must be provided for each helicopter at the time of original certification and at all times thereafter (except in the case of operators having an approved weight control system).
- See Flight Manual loading section for variations of fuel weight and moment-arm with variations of fuel quantity.
- Pilot Location STA 79.0 for helicopter S/Ns 0002 thru 0255 and STA 78.0 for helicopter S/Ns 0256 and subsequent and helicopters in which Robinson P/N seats A466-1 and A467-1 have been replaced by Robinson P/N seats A932-1 and A928-1.
- NOTE 2. One of the following placards must be installed in clear view of the pilot:
- "THE MARKINGS AND PLACARDS INSTALLED ON THIS HELICOPTER CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT ARE CONTAINED IN THE ROTORCRAFT FLIGHT MANUAL."
- Or: "THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"
- For the R22 MARINER:
- "THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS WITHOUT FLOATS INSTALLED OR DAY VFR OPERATIONS ONLY WITH FLOATS INSTALLED."
- For additional placards, see R22 Rotorcraft Flight Manual.
- NOTE 3. Retirement time of critical components is contained in the FAA approved "AIRWORTHINESS LIMITATIONS" section of the Robinson R22 Maintenance Manual. The values of retirement or service life and inspection intervals cannot be changed without FAA Engineering approval.
- NOTE 4. Deleted as of April 11, 1988.
- NOTE 5. Lycoming O-320-A2C, with Retard Magneto Starting System, eligible on S/Ns 0002 thru 0300, 0302 thru 0349, and 0352 thru 0356 helicopters.
- NOTE 6. Lycoming O-320-B2C installed on S/Ns 0175 and 0200 thru 2570 in production. It may be installed in prior S/N helicopters if the following parts are changed; Robinson P/Ns B193-2 (Window Plate - Instrument Cluster), A145-3 (Engine), A600-2 (Manifold Pressure Gauge), and A654-40 & -41 (Decals).
- NOTE 7. Deleted as of April 25, 2001.
- NOTE 8. The R22 "Police Helicopter" configuration requires Flight Manual Supplement 3, dated March 27, 1984 or later.
- NOTE 9. The R22 MARINER with floats installed is limited to daylight VFR operation only.
- NOTE 10. R22 ALPHA S/N 0364 was converted to an R22 MARINER by the manufacturer. The original R22 ALPHA data plate was removed and replaced with an R22 MARINER data plate S/N 0364M.
- NOTE 11. Lycoming O-360-J2A installed on S/N 2571 and subsequent in production. Retrofit installations of the O-360-J2A engines may only be accomplished at the Robinson Helicopter Company.

NOTE 12.

Any changes to the type design of this helicopter by means of an amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA's) must be submitted through the project aircraft certification office (ACO) for review and acceptance by the Fort Worth -Aircraft Evaluation Group (FTW-AEG) Flight Standards District Office (FSDO) prior to the aircraft delivery, or upon issuance of the first standard airworthiness certificate for the affected aircraft, whichever occurs later as prescribed by Title 14 CFR 21.50. Type design changes (major repairs or alterations) by means of a FAA Form 337 (field approval) that require ICA's must have those ICA's reviewed by the field approving FSDO.

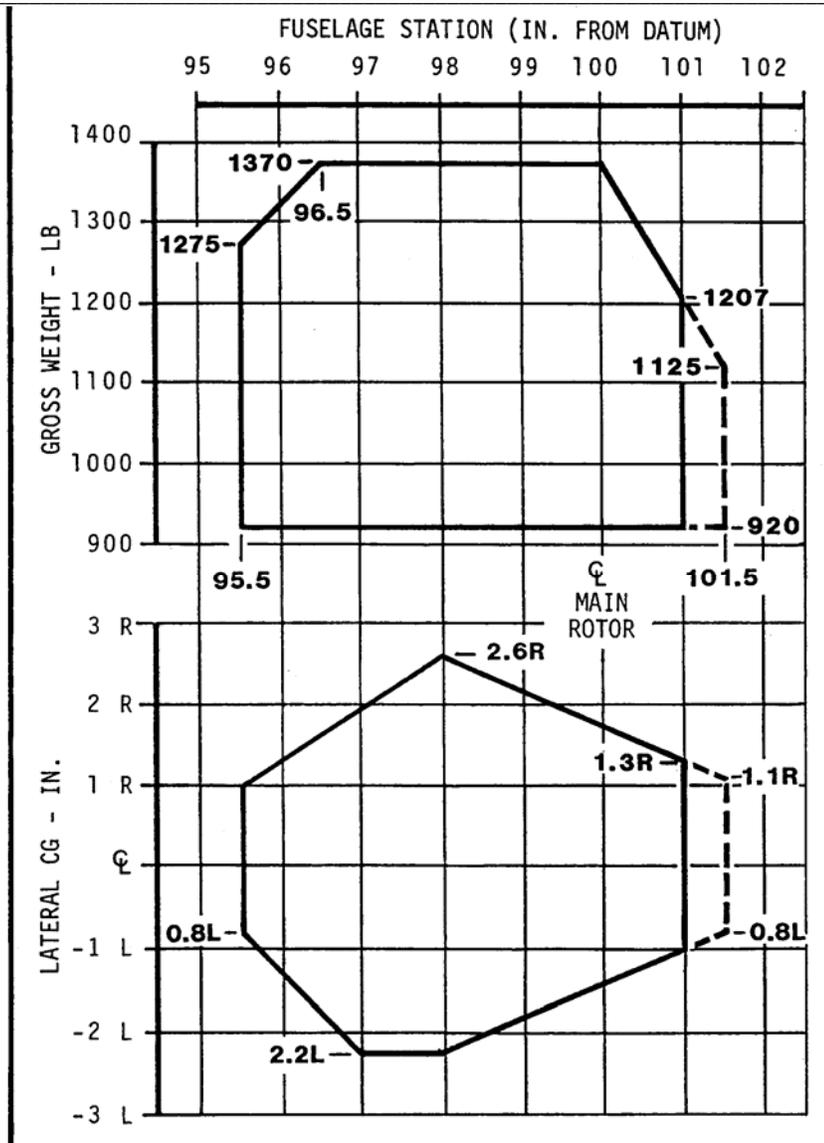


R22  
FIGURE 1



R22 ALPHA AND BETA  
FIGURE 2

WITH FLOATS \_\_\_\_\_  
WITHOUT FLOATS \_\_\_\_\_



R22 MARINER  
FIGURE 3

.....END.....