SATLOC INTELLIFLOW 3

LIQUID INSTALLATION GUIDE

875-3000-100 Rev B

Overview: This installation guide lists all the parts in the IntelliFlow 3 (IF3) liquid kits and provides instructions on how to install the IF3 components, associated cables, and switches.

Read this manual thoroughly before beginning the installation.
If you have any questions, contact your local dealer or Satloc Customer Service.

PRODUCT DESCRIPTION AND DETAILS

With the IntelliFlow 3™ (IF3) control system on board, the installed GPS, working with IF3, automatically controls aerial spray rates. This produces an accurate constant flow rate or a variable rate based on prescription maps (PMAPs) and/or 3rd party software. The required flow rates can be pilot selected, or PMAPs can be created using Satloc MapStar® desktop software.

Enter desired rates through the GPS interface, and the IF3 system will regulate and maintain selected rates. Once installed, the Satloc Falcon™, Satloc Falcon Pro™, G4™, or Bantam™ GPS the IntelliFlow 3™ system settings. Spray rates are automatically controlled with an accurate constant flow rate or a variable rate based on application selections or prescription maps (PMAPs) in the GPS system. Fine-tune applications through the rate bump feature for more precise applications.

Satloc Falcon Pro and Satloc G4 will switch between liquid and dry settings with ease. Control your Transland Hydraulic 5", 7.5", or 10" gate system inside the inside Satloc Falcon Pro or G4 and IntelliFlow 2 connections. The IntelliFlow 3™ control system comes with a controller, associated cabling, and required unlocks. Liquid kits include a valve with a motor and a meter with a magnetic sensor.

Features:

- *Liquid and Dry control options*
- *Regulate and maintain selected rates*
- *Flow control options in 0.5", 1", 1.5", 2", and 3" versions*
- *Fine tune application with rate bump*
- *Display pressure on screen and lightbar with optional transducer*

Liquid Applications Include:

- *Aerial agricultural crop applications*
- *Forestry applications*
- *Demanding eradication suppression spray program*

This system sprays precise patterns using constant rate flow control, thereby reducing:

- *Fuel*
- *Flying time*
- *Application costs*
- *Pilot fatigue*

TABLE OF CONTENTS

Latest Version of the IntelliFlow 3 Liquid Installation Guide

Satloc is dedicated to providing updated versions of installation guidebooks for its customers. Scan the QR code to verify you have the latest version of the IntelliFlow 3 Liquid Installation Guide or click this link to make sure this is the latest version www.Satloc.com.

SAFETY INFORMATION

Read and Follow Safety Messages

- In these instructions, you may see the heading ⚠WARNING: and/or the safety alert symbol ⚠. They indicate a hazardous situation that, if not avoided, could result in death or serious injury. The safety messages provide information to identify a hazard associated with potential injury.
- Read and understand this manual and all the warnings below before installing, operating, or performing maintenance or service. FAILURE TO DO SO MAY CAUSE IRREVERSIBLE DAMAGE TO YOUR SYSTEM.
- Keep this manual and all related safety information with the manuals for your aircraft.

⚠WARNING: Plan your installation by considering the following:
- Cable lengths
- Clearance space
- Power source
- Aircraft structure
- Visibility

⚠WARNING: Consider using existing hardware and hardware locations. Avoid drilling holes that may damage other equipment (such as structural frame members, electrical cables, or fluid lines).

⚠WARNING: Do not obstruct the view of, or access to, other instruments or the flying visibility of the operator.

⚠WARNING: Do not allow anyone to operate without instruction.

⚠WARNING: For trouble-free operation and maintenance of your IF3 system, adhere to the following recommendations.
- Avoid using IF3 in extreme environmental conditions (40-140°F is recommended operating temperature range).
- Wash the hopper/boom system thoroughly and methodically after spray sessions to avoid gumming up the flow meter unit.

PARTS COVERED BY THIS INSTALLATION GUIDE

This guide is applicable to all IntelliFlow 3 liquid installations for Falcon, Falcon Pro, G4, and Bantam systems and covers all IntelliFlow 3 kits. **Each table describes the parts that may be included in your installation.**

Table 1: Flow Meters (Reference letter Ⓐ is for all flow meters)

750-0046-000  0.5”x1”x1”, NPTM	750-0122-000  1”x1”x1”, NPTM	750-0091-222  1.5”x2”x 2”, Barbed	752-0010-01  1.5”x1.5”x1.5”, NPTM	752-0015-01  1.5”x2”x2”, NPTM
752-0011-01  2”x2”x2”, NPTM	752-0012-01  3”x3”x3”, Flange			

Table 2: Valve/Motor (Reference letter Ⓑ is for all valve/motor assemblies)

806-1050-000  1”x1”x1”, NPTF	806-1025-000  1.5”x2”x2”, Barbed	806-1033-000  1.5”x1.5”x1.5”, Barbed	806-1049-000  2”x2”x2”, NPTF	806-1022-000  2”x3”x 3”, Barbed
806-1090-000  3”x3”x 3”, Flange				

Table 3: IntelliFlow 3 Liquid Installation Parts

C 050-2509-000

G4 IF3 Cable

(1) (red cable)
Connects part I's CONTROLLER to G4's FLOW port

D 050-2508-000

Bantam IF3 Cable

(1) (red cable)
Connects part I'S CONTROLLER to Bantam's FLOW port

E 054-0101-000

Power Cable

(1) (black and white cable)
Connects part I's POWER cable to aircraft power source, see item K

F 050-2503-000

IF3 Motor Cable

(1) (red cable)
Connects part I VALVE MOTOR to valve/motor part B

G 050-2500-000

IF 3 Pre-amp Sensor Extension

Cable (1) (red cable)
Connects part I FLOW METER to part N

H 050-2502-000

IF 3 Trim Pressure Switch Cable

(1) (red cable)
Connects part I's TRIM/PRESSURE cable to pressure switch part J and optional pressure transducer part R

I 806-5002-000

IF3 Controller

(1) (blue box with 6 ports)
Liquid and Dry Controller

J 075-0035-222

Boom Pressure Switch

(1)
Detects Boom Pressure

K 424-0004-222

Power Switch/Circuit Breaker

(1, 10A)
Use with cable E, wire in with aircraft power

L 750-0110-03 (1")
or
750-0109-03 (2")
or
750-0107-03 (3")

Aviation Hose
(1x19.75 of 1", 2" or 3")

Use between spray valve and meter; meter and valve; valve and boom. Attach with part M.

M 682-1053-222 (2.25")
or
682-1054-222 (2.75")
or
682-1056-222 (3.75")

Hose Clamp

(4 of 2.25", 2.75", or 3.75")
Attach to Hose L

N 121-0004-000

3-Pin Flowmeter Sensor

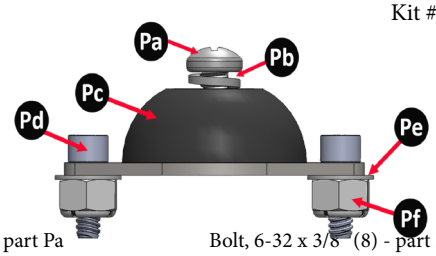
(1)
Magnetic pick-up sensor to use with flow meter part A

O Kit #710-2001-000

Horizontal Mounting Bracket

(2)

P Kit #710-2001-000



M4 Screw (4) - part Pa
Washer, split-lock (4) - part Pb
Vibration Isolator (4) - part Pc
Bolt, 6-32 x 3/8 (8) - part Pd
Washer, (8) Pe
Nut, locking 6-32 (8) - part Pf
Use items as required for your specific installation

Q Kit #711-1001-01

IF System Control Label (2)
Use with switch on part F

Terminal Ring (2)

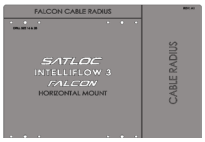
R 121-0033-01

Pressure Transducer
(Optional, not included in kits)
If used, connect to cable H. Can set data panel or lightbar to display the pressure reading (option is 'Primary Boom PSI').

S 601-1313-000

(Optional, not included in kits)
Mounting Layout Template for Falcon/IF3 Rack Mount

T 601-1317-000



(Optional, not included in kits)
Mounting Layout Template for Falcon/IF3 Horizontal Mount

U 050-2204-000

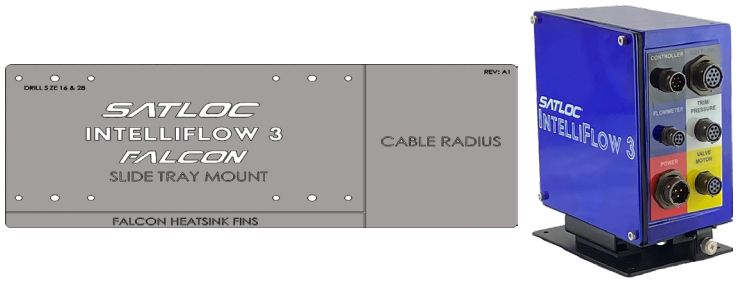
Falcon Extension Cable
(1) (red cable)
Connects part I's CONTROLLER to Falcon/Falcon Pro Extension port

INSTALLING INTELLIFLOW 3

Controller Installation

Mount the controller in an available space on the aircraft, for example, in or around the baggage compartment. Ensure there is enough space for making connections and cable bend radius. Access is needed behind the mounting surface to attach the nuts to the bolts (part P). When you have selected the mounting location, use one of the plate stencils (part S or part T) as a template to mark fastener positions. Use drill bit sizes 16 or 28 to drill holes for the fasteners and secure the IF3 Controller (part I) to the aircraft using hardware (part P).

Rack Mounting: It is recommended to use the Mounting Layout Template (PN 601-1313-000) to assure accuracy for locating the correct position of the vibration isolators. ***This template is available for purchase.***



Horizontal Mounting: It is recommended to use the Mounting Layout Template (PN 601-1317-000, Part T) to assure accuracy for locating the correct position of the vibration isolators. ***This template is available for purchase.***

1. CPU Rack Mounted Upright (PN 601-1313-000, Part S)
    a) Vibration Isolators (Part Pc) With Template (Part S)
        i) Place the template (Part S) in the desired location while heeding the above recommendations.
        ii) Use the template to mark the fastener hole locations of the four vibration isolator feet (Part Pc). There are eight holes at #28 drill bit (0.140”).
        iii) Drill holes being careful not to cause damage.
        iv) Use parts Pd, Pe, and Pf to attach Pc to the airframe.
        v) Use parts Pa and Pb to attach the CPU rack system to vibration isolators (Part Pc).

    b) Vibration Isolators Without Template
        i) Using parts Pa and Pb attach vibration isolators (Part Pc) to the CPU rack system.
        ii) Place CPU in the desired location while heeding the above recommendations.
        iii) Mark airframe fastener locations using the open holes in the vibration isolator feet.
        iv) Drill holes being careful not to cause damage.There are eight holes at #28 drill bit (0.140”).
        v) Use parts Pd, Pe, and Pf to attach vibration isolators (Part Pc) to approved structure.

2. CPU Horizontally Mounted With Vibration Isolators
    a) Horizontal Mounts With Template (PN 601-1317-000, Part T)
        i) Place the template (Part T) in the desired location while heeding the above recommendations.
        ii) Use the template to mark the fastener hole locations of the four vibration isolator feet (Part Pc). There are eight holes at #28 drill bit (0.140”).
        iii) Drill holes being careful not to cause damage.
        iv) Use hardware from the pre-assembled rack mount system to attach horizontal mounting brackets (Part O) to the CPU.
        v) Use parts Pd, Pe, and Pf to attach vibration isolators (Part Pc) to approved structure.
        vi) Use parts Pa and Pb to attach vibration mounts to horizontal mounting brackets (Part O).

b) Horizontal Mounts Without Template

i) Use hardware from the pre-assembled rack mount system to attach horizontal mounting brackets (Part O) to the CPU.

ii) Use parts Pa and Pb to attach vibration isolators (Part Pc) to horizontal mounting brackets.

iii) Place CPU in the desired location while heeding the above recommendations.

iv) Mark the fastener hole locations of the four vibration isolator feet. There are eight holes at #28 drill bit (0.140").

v) Drill holes being careful not to cause damage.

vi) Use parts Pd, Pe, and Pf to attach vibration isolators (Part Pc) to approved structure.

3) CPU Horizontally Mounted Without Vibration Isolators

a) Horizontal Mounts With Template (PN 601-1317-000, Part T)

i) Place the template (Part T) in the desired location while heeding the above recommendations.

ii) Use the template to mark the fastener hole locations of the 4 fastener locations. There are four holes at #16 drill bit (0.177").

iii) Drill holes being careful not to cause damage.

iv) Use hardware from the pre-assembled rack mount system to attach horizontal mounting brackets (Part O) to the CPU.

v) Use locally sourced hardware to attach the CPU to approved structure.

b) Horizontal Mounts Without Template

i) Use hardware from the pre-assembled rack mount system to attach horizontal mounting brackets (Part O) to the CPU.

ii) Place CPU in the desired location while heeding the above recommendations.

iii) Mark the fastener hole locations of the four fastener locations. There are four holes at #16 drill bit (0.177").

iv) Drill holes being careful not to cause damage.

v) Use locally sourced hardware to attach the CPU to approved structure.

Part I: IF3 Controller

Cable Connection Steps to IF3 Controller

1. Connect part C, part D or part U (depending upon the use of a G4, Bantam, Falcon/Falcon Pro GPS) to the CONTROLLER port of part I.
2. Connect part C or part D to the respective G4's or Bantam's FLOW port or part U to one of Falcon/Falcon Pro's extension ports.
3. Connect part E to part I's POWER port.
4. With part E and part K, ensure part K is a) wired into the aircraft's power supply and b) cockpit-mounted within easy reach of the pilot. *(Install per pilot's preference.)*
5. Connect part F's MOTOR cable to Part I's VALVE MOTOR port.
6. Ensure the bypass switch on part F is cockpit-mounted within easy reach of the pilot. *(Install per pilot's preference.)*
7. Connect part F to part B.
8. Connect part G to part I's FLOW METER port.
9. Securely connect part N to part A.
10. Connect part G to part N.
11. Connect part H to part I's TRIM/PRESSURE port.
12. Ensure the trim bump switch on part H is cockpit-mounted within easy reach of the pilot. *(Install per pilot's preference.)*
13. Connect part H's BOOM SENSOR wires to part J. (*Note: Part H's PRESSURE TRANSDUCER cable is optional. Use with optional part R.*)

⚠WARNING:

- Store excess cable lengths with a minimum six-inch bend radius.
- Do not coil cables (introduces noise).
- Avoid high-temperature exposure (for example - the exhaust, exhaust manifold) when routing.
- Hand tighten connections only; do not use tools (overtighten).

FLOW METER AND VALVE INSTALLATION

Install the flow meter and valve/motor assembly in the aircraft's existing boom supply tube. Figure 2 shows the recommended configuration of IntelliFlow 3's flow meter and valve/motor assembly. If you cannot install the flow meter and valve/motor vertically (as shown) because of the physical limitations of the aircraft, you may vary the rotational position of either as required.

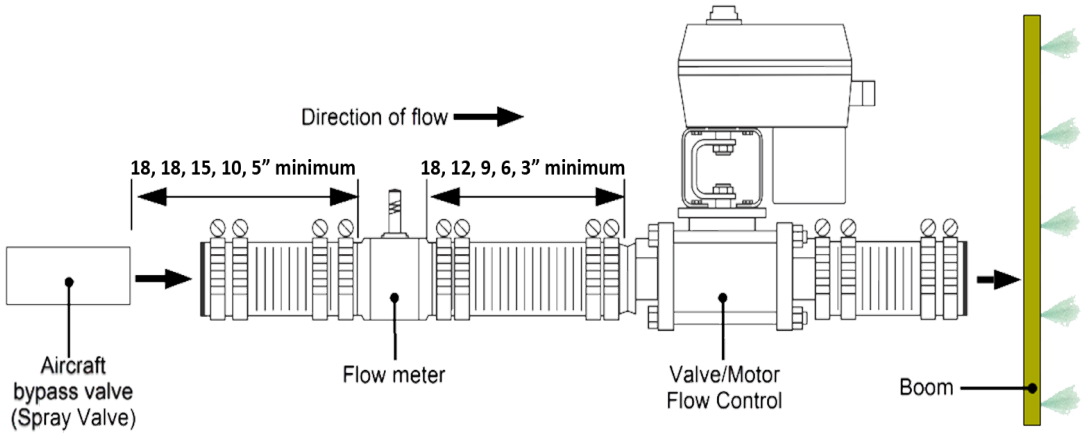


Figure 2: Recommended Configuration of Flow Meter and Valve/Motor Assembly

The flow meter must be installed before the valve/motor assembly to avoid excessive turbulence. To minimize the turbulence around the flow meter, cut the hoses (at step 1 below) to maintain the following minimum hose-length to diameter ratios (i.e., 10:1 or 6:1).

The length between the bypass valve and the flowmeter is the **most critical**; this section should be as long and straight as possible, exceeding the minimums below when possible. However, it is acknowledged that the recommended minimum distances are very often not possible. In such cases, install the meter and valve as far apart as possible.

Table 4: Minimum Hose Length Between Components

⚠WARNING:

Flow Meter Size	Distance Between Spray Valve and Flow Meter	Distance Between Flow Meter and Flow Control Motor
3”	10:1 Recommended Min – ≥ 30” Due to aircraft limitations 18” is acceptable absolute minimum	6:1 Recommended Min – ≥ 18”
2”	10:1 Recommended Min – ≥ 20” Due to aircraft limitations 18” is acceptable absolute minimum	6:1 Recommended Min – ≥ 12”
1.5”	10:1 Recommended Min – ≥ 15”	6:1 Recommended Min – ≥ 9”
1”	10:1 Recommended Min – ≥ 10”	6:1 Recommended Min – ≥ 6”
.5”	10: 1 Recommended Min – ≥ 5”	6:1 Recommended Min – ≥ 3”

To install the flow meter and valve/motor:

1. Measure and cut hoses to connect (see warning above):
   - Spray valve to the flow meter
   - Flow meter to the valve/motor assembly
   - Valve/motor assembly to the boom
2. Secure the hoses using two clamps at each connection. This now constitutes the ‘IntelliFlow 3 assembly’.
3. Attach the IntelliFlow 3 assembly to the boom supply plumbing.
4. Install one or two support fittings from supporting structures of the belly skin of the aircraft close to the valve and flow meter.

⚠WARNING: Do not connect support fittings directly to the flowmeter or valve/motor. Use stainless wrap-around straps and supports.

Technical Support

To find an authorized dealer near you, visit www.satloc.com.

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