INTELLIFLOW2 INSTALLATION GUIDE

Liquid Kits	New IF2 Liquid Kits				Upgrade from Legacy IntelliFlow
	1.5” V, 1.5”M	2”V, 1.5”M	2”V, 2”M	2”V, 3”M	
G4	900-0042-01	900-0031-01	900-0032-01	900-0033-01	900-0034-01
Bantam	900-0049-01	900-0046-01	900-0047-01	900-0048-01	900-0050-01

Dry Kits	Rotary		Contelec Rotary		5Vdc Linear	Externally-Powered 24Vdc Linear
	Standard Hydraulic	Accumulator Hydraulic	Standard Hydraulic	Accumulator Hydraulic		
New IF2 Dry Kit	900-0036-000	900-0037-000	900-0060-000	900-0061-000	900-0064-000	900-0066-000
Upgrading to Dry from IF2 Liquid	900-0038-000	900-0039-000	900-0062-000	900-0063-000	900-0065-000	900-0067-000

OVERVIEW

This installation guide lists all the parts in the kits and provides instructions on how to install the IntelliFlow2 (IF2) components and associated cables and switches.

Read this manual thoroughly before beginning the installation.

How to Use This Guide

Read and understand all safety warnings - Page 2

Make sure you fully understand all the safety warnings on the next page before installing and using IntelliFlow2.

Verify you have the correct parts - Starting on page 3

Refer to “About the Parts Covered by this Installation Guide” on page 3 and “Parts for Your Installation” starting on page 4 to confirm you have received all parts of your IntelliFlow2 installation.

Install IntelliFlow2 - Starting on page 12

Follow the instructions to install IntelliFlow2 in your aircraft.

Get help when needed

Have a question or issue? Contact your local dealer or Satloc Customer Service.

To find the authorized dealer near you visit www.satloc.com.

Satloc Technical Support Email: support@satloc.com
Phone/Text: 833-4-SATLOC

SAFETY INFORMATION

The warnings starting below and those throughout this manual (indicated by either graphic at right) provide information to identify hazards associated with potential injury or death and tell you how to avoid them.

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.

Safety Information and Warnings

Installation Planning

Plan your installation by considering the following:

- Cable lengths
- Clearance space
- Power source
- Aircraft structure
- Visibility
- Balance (see Table 3 on page 3 for approximate weight of major components)

Hardware Placement

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).

Operator Visibility

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

Operator Use

Do not allow anyone to operate without instruction.

Safety

For trouble-free operation and maintenance of your IF2 system, adhere to the following recommendations.

- Avoid using IF2 in extreme environmental conditions (40-140°F is recommended operating temperature range).
- When flying under adverse conditions, cover the motor head with a water-resistant canvas to avoid water and/or chemicals from seeping into the controller or motor.
- Wash the hopper/boom system thoroughly and methodically after spray sessions to avoid gumming up the flow turbine unit.

About the Parts Covered by this Installation Guide

This guide is applicable to IntelliFlow2 installations for both G4 and Bantam and covers all IntelliFlow2 kits. The tables below provide general information to get you started.

Table 1: Parts for your installation

Parts (See tables in this guide)	New IntelliFlow2 users **(Liquid or Dry)**	Existing IntelliFlow2 Liquid users upgrading to Dry	Existing Legacy IntelliFlow users upgrading to IntelliFlow2 Liquid
Flow meter/valve combination (one only) (Table 4 on page 4)	Included	N/A	N/A since user already has these.
Parts common to new IntelliFlow2 users (Table 5 on page 5)	Included	N/A	N/A
Liquid upgrade kit (Table 6 on page 7)	N/A	N/A	Included
Dry upgrade kit (one of the following): • Rotary upgrade (Table 8 on page 8) • Linear upgrade (Table 9 on page 10)	Optional	Included	Optional

Table 2: Flow meter, valve/motor combinations for IntelliFlow2 kits (G4 and Bantam)

G4 kit (with CAN cable 051-0404-000)	**Bantam kit (with serial cable 051-0403-000)**	**Flow meter**	**Valve/Motor**	**Hose Size**
900-0042-01	900-0049-01	1.5”	1.5”	1.5”
900-0031-01	900-0046-01	1.5”	2”	2”
900-0032-01	900-0047-01	2”	2”	2”
900-0033-01	900-0048-01	3”	2”	3”
900-0034-01	900-0050-01	N/A – liquid upgrade kit – see page 7		

Table 3: Component weights

Component	Weight (approximate)
IntelliFlow2 Controller	0.55 lb (0.25 kg)
Valve/motor assembly 1.5/2.0/3.0 in	14.25 lb (6.46 kg)
Flow control meter 2.0/3.0 in	4.0 lb (1.81 kg)
Aviation hose 2.0/3.0 in	1.55 lb (0.7 kg)
Complete cable set (liquid)	8.0 lb (3.62 kg)
Complete cable set (dry)	3.1 lb (1.41 kg)

PARTS FOR YOUR INSTALLATION

Each of the following sections describes the parts that may be included in your installation. Refer to “About the Parts Covered by this Installation Guide” on the previous page for assistance.

The “Ref” letters refer to the designators on the Cables and Connections Diagram on page 13.

Table 4: Flow meter – Valve/Motor Combination by Kit

Ref	Kit	Part Numbers	Descriptions	Items (all ‘Qty’ 1)
A & B	G4: 900-0042-01* Bantam: 900-0049-01*	752-0010-01 806-1033-000	Flow meter, 1.5” Valve/motor assembly, 1.5” x 1.5” x 1.5”	
A & B	G4: 900-0031-01* Bantam: 900-0046-01*	752-0010-01 806-1049-000	Flow meter, 1.5” Valve/motor assembly, 2”	
A & B	G4: 900-0032-01 Bantam: 900-0047-01	752-0011-01 806-1049-000	Flow meter, 2” Valve/motor assembly, 2”	
A & B	G4: 900-0033-01 Bantam: 900-0048-01	752-0012-01 806-1022-000	Flow meter, 3” Valve/motor assembly, 2” x 3” x 3”	

*For the 1.5” Flow Meter Kits a Stainless-Steel Bushing is provided (PN 522-100-000) to insert around the sensor, between the meter housing and the jam nut. This will allow proper tightening of the sensor and nut.

Table 5: Parts Common to All New IntelliFlow2 Users

Ref	Qty	Part Number	Description	Picture
C/D	1	051-0404-000 (Kits: 900-0031-01, 900-0032-01, 900-0033-01, 900-0034-01, 900-0042-01) 051-0403-000 (Kits: 900-0046-01, 900-0047-01, 900-0048-01, 900-0049-01, 900-0050-01)	CAN Cable (Connects IF2 main harness 'TERMINAL' To G4's 'FLOW' port) Serial Cable (Connects IF2 main harness 'TERMINAL' To Bantam's 'FLOW' port)	
E	1	051-0173-000	Cable, pre-amp sensor extension cable (Connects between IF2 bulk harness and flow meter)	
F	1	051-0405-000	Cable, trim, pressure switch/transducer (Trim bump switch, pressure and dry gate micro switches wiring and optional pressure transducer Pa)	
G	1	054-0101-000	Cable, IF2 power cable (Connects IF2 to aircraft power source, see item K)	
H	1	054-0111-222	Cable assembly, IF2 motor, 20ft (Bypass switch for regulating valve – use S with switch)	
I	1	054-0225-000	Cable, main harness (Connects to IF2 controller S [ECU], liquid and dry)	
J	1	075-0035-222	Boom pressure switch (Use in conjunction with G4's equivalent to 'Paint' product application on the map)	

Ref	Qty	Part Number	Description	Picture
K	1	424-0004-222	Power switch/circuit breaker, 10A (Use with G, wire in with aircraft power)	
L	2 x 19.75”	750-0110-03 (Kits 900-0042-01, 900-0049-01) 750-0109-03 (900-0031-01, 900-0032-01, 900-0046-01, 900-0047-01) 750-0107-03 (900-0033-01, 900-0048-01)	Hose, aviation, 1.5” ID Hose, aviation, 2” ID Hose, aviation, 3” ID (Use between strainer and meter; meter and valve; valve and boom. Attach with M.)	
M	8	682-1053-222 (Kits 900-0042-01, 900-0049-01) 682-1054-222 (Kits 900-0031-01, 900-0032-01, 900-0046-01, 900-0047-01) 682-1056-222 (Kits 900-0033-01, 900-0048-01)	Hose clamp, 2.25” Max Hose clamp, 2.75” Max Hose Clamp, 3.75” Max (Attach Hose L)	
N	1	121-0004-000	3-Pin Flow meter Sensor (Low-Flow Pick-Up Sensor. Use with Flow meters)	
Q	1	800-0004-01	IF2 controller [ECU] (Liquid and dry controller)	
N/A	1	711-0001-01	Hardware Kit	(See Table 7)
Pa	Optional	121-0032-01	Pressure transducer (optional—not included in Kits) If used, connect to F. Can set data panel or lightbar to display the pressure reading (option is ‘Primary Boom PSI’).	

Table 6: Liquid Upgrade Kit (Upgrading from Legacy IntelliFlow)

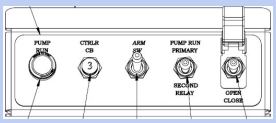
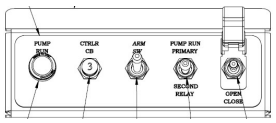
Ref	Qty	Part Number	Description	Picture
C/D	1	051-0404-000 (Kits: 900-0031-01, 900-0032-01, 900-0033-01, 900-0034-01, 900-0042-01) 051-0403-000 (Kits: 900-0046-01, 900-0047-01, 900-0048-01, 900-0049-01, 900-0050-01)	CAN Cable Serial Cable (Connects IF2 main harness 'TERMINAL' to Bantam's/G4's 'FLOW' port)	
E	1	051-0173-000	Cable, pre-amp sensor extension cable (Connects between IF2 bulk harness and flow meter)	
F	1	051-0405-000	Cable, trim, pressure switch/transducer (Trim bump switch, pressure and dry gate micro switches wiring and optional pressure transducer Pa)	
I	1	054-0225-000	Cable, main harness (Connects to IF2 controller S [ECU], liquid and dry)	
N	1	121-0004-000	3-Pin Flow meter Sensor (Low-Flow Pick-Up Sensor. Use with Flow meters)	
P**b**	1	602-1142-000	IntelliFlow to IntelliFlow2 adapter plate	
Q	1	800-0004-01	IF2 controller [ECU] (Liquid and dry controller)	
N/A	1	711-0001-01	Hardware Kit	(See Table 7)

Table 7: Hardware Kit 711-0001-01

Ref	Qty	Part Number	Description	Picture
R	2 2 4 2	512-0081-01 516-0062-01 516-0063-01 518-0054-01	Bolt, ¼” Washer, ¼” spring, locking Washer, ¼” plain, flat Nut, locking, ¼” (Use items as required for your specific installation)	
S	1	486-1113-222	Label, IntelliFlow System control (Use with switch on H)	
T	2	405-0033-000	Terminal Ring	

Table 8: Rotary and Contelec Rotary Dry Kits

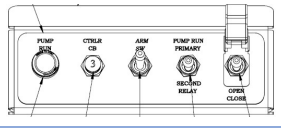
Ref	Quantity								Part Number	Description	Picture
	900-0036-000 Rotary, Std Hydraulics, New	900-0037-000 Rotary, Accumulator, New	900-0038-000 Rotary, Std Hydraulics, Upgrade	900-0038-000 Rotary, Accumulator, Upgrade	900-0060-000 Contelec, Std Hydraulics, New	900-0061-000 Contelec, Accumulator, New	900-0062-000 Contelec, Std Hydraulics, Upgrade	900-0063-000 Contelec, Accumulator, Upgrade			
C	1	1			1	1			051-0404-000	CAN Cable	
F	1	1			1	1			051-0405-000	Cable, trim, pressure switch/transducer (Trim bump switch, pressure and dry gate micro switches wiring and optional pressure transducer Pa)	
G	1	1			1	1			054-0101-000	Cable, IF2 power cable (Connects IF2 to aircraft power source, see item K)	

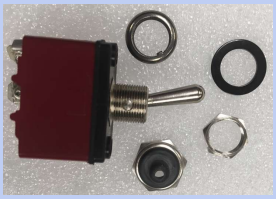
Ref	Quantity								Part Number	Description	Picture
	900-0036-000 Rotary, Std Hydraulics, New	900-0037-000 Rotary, Accumulator, New	900-0038-000 Rotary, Std Hydraulics, Upgrade	900-0038-000 Rotary, Accumulator, Upgrade	900-0060-000 Contelec, Std Hydraulics, New	900-0061-000 Contelec, Accumulator, New	900-0062-000 Contelec, Std Hydraulics, Upgrade	900-0063-000 Contelec, Accumulator, Upgrade			
I	1	1			1	1			054-0225-000	Cable, main harness (Connects to IF2 controller S [ECU], liquid and dry)	
K	1	1			1	1			424-0004-222	Circuit Breaker 10A	
Q	1	1			1	1			800-0004-01	IF2 controller [ECU] (Liquid and dry controller)	
U	1	1	1	1	1	1	1	1	051-0408-000	Cable, dry gate encoder, triggers and security switches, arm switch and motor solenoids (Connects to IF2 harness' 'DRY FLOW'- Item I)	
W	1	1	1	1	*	*	*	*	051-0409-000	Cable, main harness to dry gate rotary encoder *Note: Contelec Encoder does NOT need an additional cable. The cable is integrated into encoder.	
Y	1		1		1		1		27676	Control Panel Standard Hydraulics	
Y		1		1		1		1	27677	Control Panel Accumulator Hydraulics	

Ref	Quantity								Part Number	Description	Picture
	900-0036-000 Rotary, Std Hydraulics, New	900-0037-000 Rotary, Accumulator, New	900-0038-000 Rotary, Std Hydraulics, Upgrade	900-0038-000 Rotary, Accumulator, Upgrade	900-0060-000 Contelec, Std Hydraulics, New	900-0061-000 Contelec, Accumulator, New	900-0062-000 Contelec, Std Hydraulics, Upgrade	900-0063-000 Contelec, Accumulator, Upgrade			
Z	1	1			1	1			075-3022-000	Toggle Switch	
N/A	1	1			1	1			711-0001-01	Hardware Kit	See Table 7

Table 9: Linear Dry Kits

Ref	Quantity				Part Number	Description	Picture
	900-0064-000 5Vdc Linear New	900-0065-000 5Vdc Llinear Upgrade	900-0066-000 Externally-Powered 24Vdc Linear New	900-0067-000 Externally Powered 24Vdc Linear Upgrade			
C	1		1		051-0404-000	CAN Cable	
F	1		1		051-0405-000	Cable, trim, pressure switch/transducer (Trim bump switch, pressure and dry gate micro switches wiring and optional pressure transducer Pa)	
G	1		1		054-0101-000	Cable, IF2 power cable (Connects IF2 to aircraft power source, see item K)	

Ref	Quantity				Part Number	Description	Picture
	900-0064-000 5Vdc Linear New	900-0065-000 5Vdc Llinear Upgrade	900-0066-000 Externally-Powered 24Vdc Linear New	900-0067-000 Externally Powered 24Vdc Linear Upgrade			
I	1		1		054-0225-000	Cable, main harness (Connects to IF2 controller S [ECU], liquid and dry)	
K	1		1		424-0004-222	Circuit Breaker 10A	
Q	1		1		800-0004-01	IF2 controller [ECU] (Liquid and dry controller)	
U	1	1	1	1	051-0408-000	Cable, dry gate encoder, triggers and security switches, arm switch and motor solenoids (Connects to IF2 harness' 'DRY FLOW'- Item I)	
V	1	1			051-0410-000	Cable, Bulk harness to dry gate 5Vdc linear encoder	
X			1	1	050-0003-01	Cable, Bulk harness to dry gate linear encoder and 24Vdc aircraft power	
Y	1	1	1	1	27676	Control Panel Standard Hydraulics	

Ref	Quantity				Part Number	Description	Picture
	900-0064-000 5Vdc Linear New	900-0065-000 5Vdc Llinear Upgrade	900-0066-000 Externally-Powered 24Vdc Linear New	900-0067-000 Externally Powered 24Vdc Linear Upgrade			
Z	1		1		075-3022-000	Toggle Switch	
N/A	1		1		711-0001-01	Hardware Kit	See Table 7

INSTALLING INTELLIFLOW2

Use the remaining sections in this guide to install IntelliFlow2:

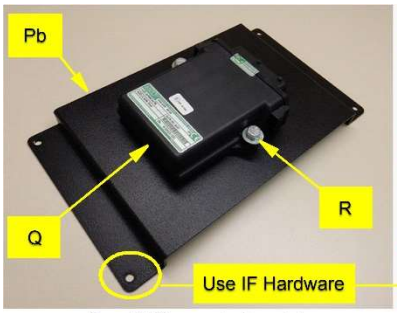
- “Controller Installation” (below)
- “Cables and Connections” on page 13
- “Flow meter and Valve Installation” on page 14
- “Dry Flow Connections - Transland Standard Hydraulic Gate” on page 15
- “Dry Flow Connections - Transland Accumulator Hydraulic Gate” on page 16
- “Cockpit Controls Installation” on page 16

Controller Installation

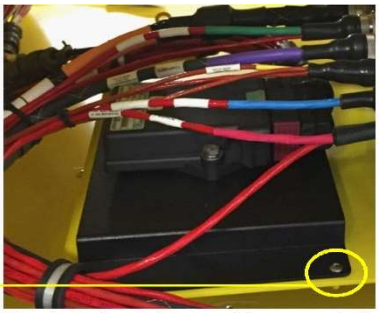
Mount the controller in an available space on the aircraft, for example, in or around the baggage compartment. Ensure there is enough space for making connections.

Replacing an installed IntelliFlow?

If you are replacing an installed IntelliFlow and have adapter plate Pb, mount IF2 controller Q on the adapter plate using hardware R (at right, left image) and mount the adapter plate on the aircraft using the existing IntelliFlow fasteners (at right, right image).



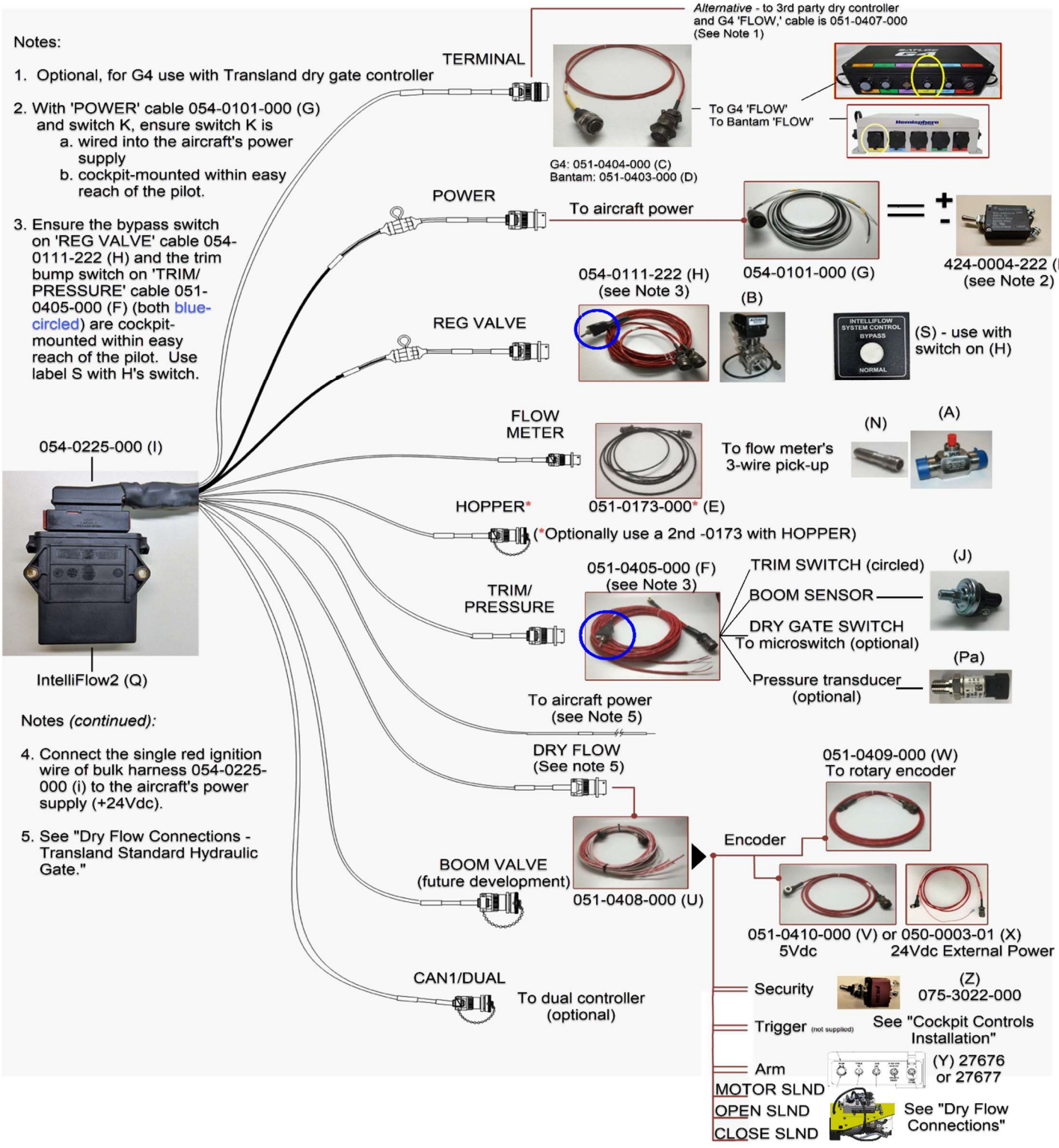
Mount IF2 on adapter plate


Mount adapter plate where IF was mounted

New installation (not replacing an installed IntelliFlow)?

If you are not replacing an installed IntelliFlow, you will need to access behind the mounting surface to attach the nuts to the bolts (R). When you have selected the mounting location, use the controller as a template to mark fastener positions. Drill 1/4” holes for the fasteners and secure the controller on the aircraft using hardware R.

CABLES AND CONNECTIONS



⚠ 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 1 shows the recommended configuration of IntelliFlow2's flow meter and valve/motor assembly. If you cannot install the flow meter and valve/motor vertically (as shown) because of physical limitations of the aircraft, you may vary the rotational position of either as required.

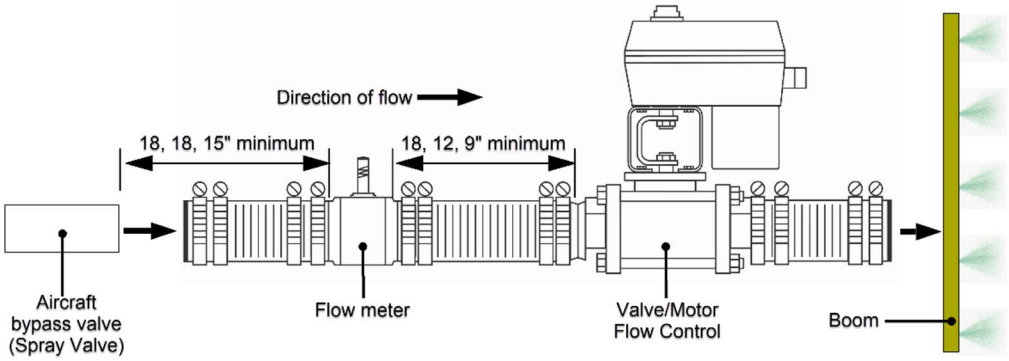


Figure 1: Recommended configuration of flow meter and valve/motor assembly

⚠ WARNING:

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 flow meter is the **most critical**; this section should be as long and straight as possible…exceeding the minimums below when possible.

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"

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.

To install the flow meter and valve/motor:

1. Measure and cut hoses to connect (see warning above):
   - Strainer 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 'IntelliFlow2 assembly'.
3. Attach the IntelliFlow2 assembly to the boom supply plumbing.
4. Install one or two support fittings from the belly of the aircraft close to the valve and flow meter.

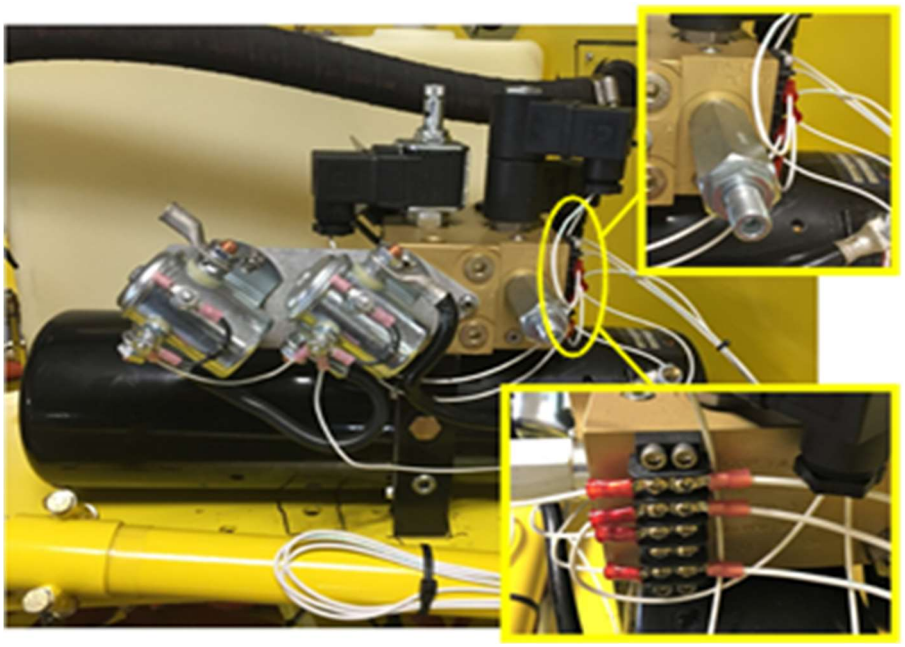
⚠ WARNING:

Do not connect support fittings directly to the flow meter or valve/motor. Use stainless wrap-around straps and supports.

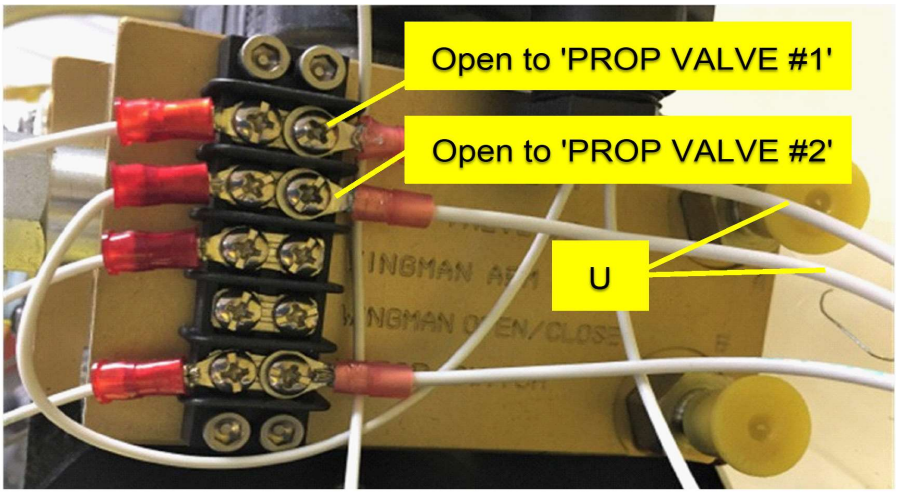
DRY FLOW CONNECTIONS - TRANSLAND *STANDARD* HYDRAULIC GATE

Please refer to Transland document 98607 for more details.

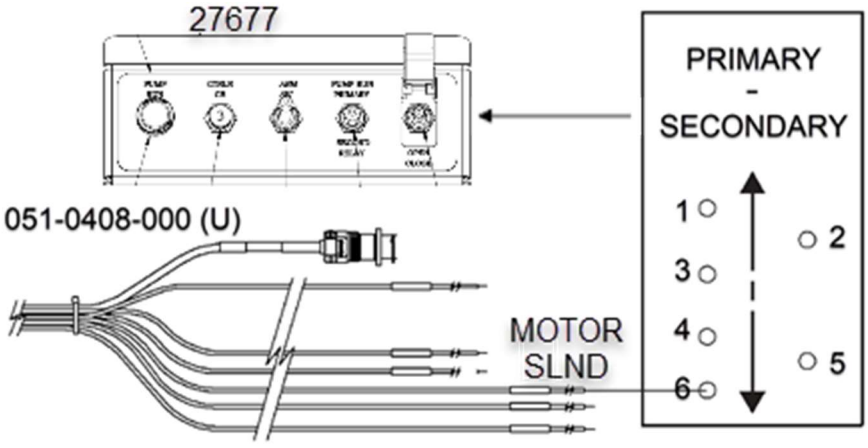
Cable U connects (in part) to the terminal block (connections panel) at the top rear of the hydraulic power pack



Connect U's OPEN SLND and CLOSE SLND wires to the 'PROP VALVE #1' and 'PROP VALVE #2' terminals respectively (top and second from top—right side as viewed).

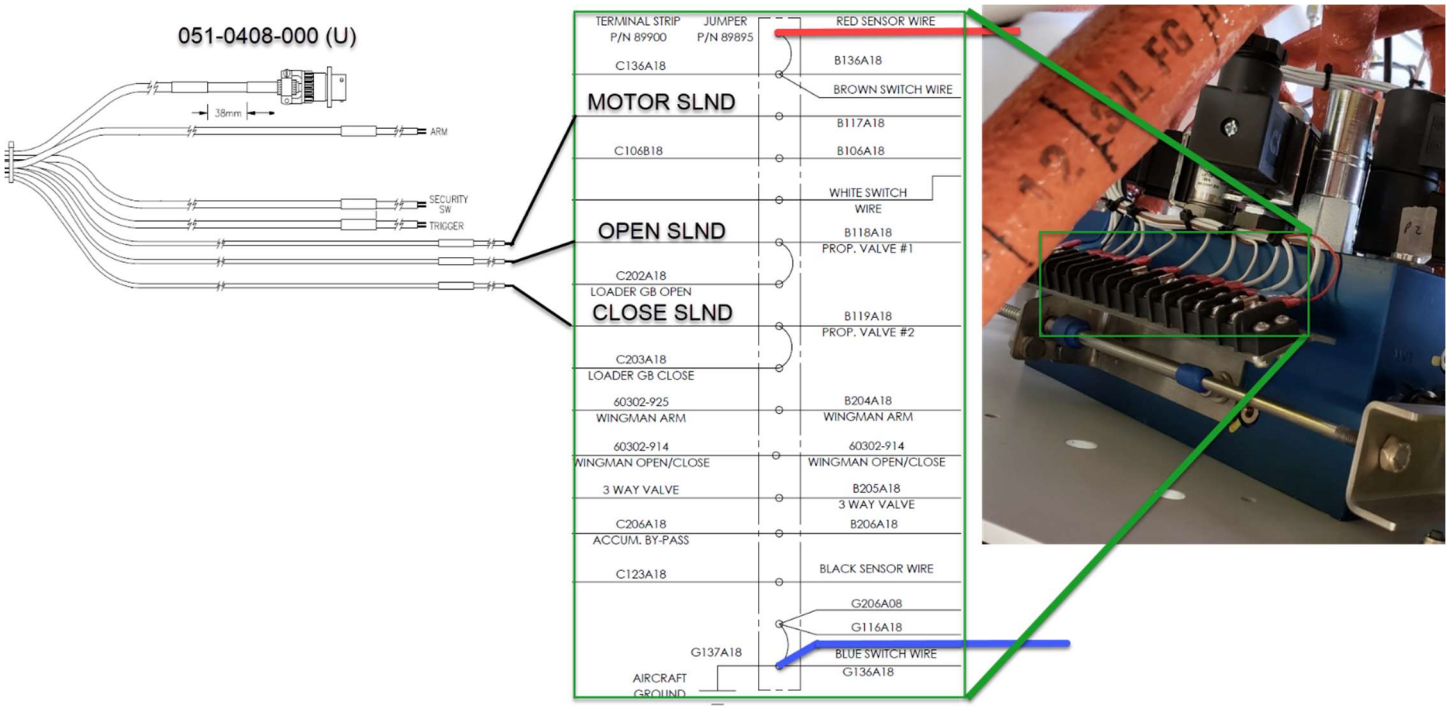


Connect U's MOTOR SLND wire to the #6 terminal of primary/secondary switch on the Transland IntelliFlow2 control panel (27677).



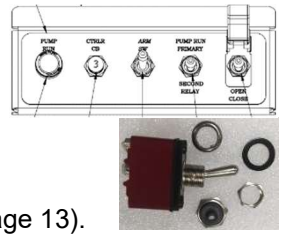
DRY FLOW CONNECTIONS - TRANSLAND *ACCUMULATOR* HYDRAULIC GATE

Please refer to Transland document 98608 for more details.



Cable U connects to the terminal block (connections panel) of the hydraulic power pack as shown above. Note the orientation of the terminal block by the red and blue wires.

DRY FLOW COCKPIT CONTROLS INSTALLATION



Install the Transland 27676 or 27677 3-switch mounting panel.

Install item Z so that mechanics/technicians on the ground can work safely around the gate.

Ensure all cockpit switches are easily accessible to the pilot (see also Notes in schematic on page 13).

Table 10: Arm, security, and trigger switches

Switch	Description/Usage
Arm	To ensure unintentional use of the trigger switch does not activate the gate, the Arm switch must be OFF until the pilot nears the work area. When ON the system is pre-energized in preparation of operation of the gate by the trigger switch.
Security	The Security switch disables the IF2 system from making any commands to the gate (it is effectively a gate isolation switch). When ON, the gate cannot be activated, ensuring that it is, for example, safe for a mechanic/technician to work on or around the gate.
Trigger	When the Arm switch is ON, and the Security switch OFF, the trigger switch activates the gate. If the operator is applying at a constant rate, he/she will press and hold the trigger switch when entering the polygon (if the trigger switch is wired to the joystick, and on a momentary switch), and release it when exiting.