

# DYNAJET IC7140

## RELEASE NOTES

Integrating DynaJet into a sprayer can be a significant undertaking. TeeJet Technologies has a team of dedicated DynaJet specialists ready to help our customers with this task. Please contact TeeJet Technologies so we may assist you.

### DynaJet IC7140 v1.50

July 2024

Note: DynaJet v1.50 is not recommended for use on systems that include Spot Spray.

Associated Documentation:

- Manual 98-05347 R3
- Software Update 98-01571 R1
- DynaJet Valve Maintenance Instructions 98-01580 R1

New Features:

- A new automatic boom configuration feature has been implemented. At first time power-up **of a complete and fully operational system**, DynaJet IC7140 will detect the type and number of driver modules and the number of DynaJet valves connected to the driver modules, and check that they match the configuration file. If the system is as expected, the user is prompted to accept the boom configuration. New pages help identify any future mismatches between the saved boom configuration and the actual components detected at that time.
- The "Low Current Limit" setting now has a low-end limit of 0.1A to ensure that the user is always warned if a DynaJet valve is faulty or missing.
- Changes to languages:
  - Currently supported languages:
    - BG [Bulgarian / Български]
    - CZ [Czech / Český]
    - DA [Danish / Dansk]
    - DE [German / Deutsch]
    - ES [Spanish / Español] (Latin American)
    - FR [French / Français] (France)
    - IT [Italian / Italiano]
    - NL [Dutch / Nederlands]
    - PL [Polish / Polski]
    - PT-BR [Portuguese BR-Brazil / Português BR-Brasil]
    - RO [Romanian / Română]
    - RU [Russian / Русский]
    - SK [Slovak / Språk]
  - Languages no longer supported:
    - ET [Estonian / Eesti]
    - FI [Finnish / Suomi]
    - HU [Hungarian / Magyar]
    - LV [Latvian / Latvietis]
    - LT [Lithuanian / Lietuviškai]
    - NO [Norwegian / Norsk]
    - SV [Swedish / Svenska]
    - UK [Ukrainian / Українська]

Fixes:

- Language updates independent of software updates are now possible using a USB Drive app. Contact TeeJet Technical Support for more information.
- Corrects problem where the driver voltage reported on the System Overview page on systems that had drivers connected to both busses could be the wrong value.
- Corrects problem where the clearing of errors on the System Overview page may not update the driver module voltage values for all drivers.
- Corrects problem where faulty DynaJet valves on systems without Spot Spray would not be reported as off in the System Overview page.
- Corrects problem where systems provisioned for Spot Spray:
  - Would not connect to the Spot Spray system if the Spot Spray system was connected after complete DynaJet IC7140 boot.
  - Would not fall back to regular DynaJet IC7140 operation if the Spot Spray system was disconnected in the same power cycle.

### DynaJet IC7140 v1.40

December 2023

Associated Documentation:

- Manual 98-05347 R2
- Software Update 98-01571 R1
- DynaJet Valve Maintenance Instructions 98-01580 R1

New Features:

- Now supports 254 nozzles.
- Added nozzle series: AI80, AI110, AIC110, and DG80.
- Standard Turn Compensation is enabled by default and no longer requires an unlock code.
- In combination with Spot Spray, it is now possible to activate a background spray function that gives a basis spray from all active nozzles on the boom.
  - Requires a driver module software update that happens automatically when updating to v1.40.

DYNAJET IC7140



# RELEASE NOTES

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- Now able to receive nozzle PWM data from a Spot Spray TCP client to build a custom PWM profile.
- The diagnostics page for Spot Spray TCP clients now includes DynaJet IC7140 capabilities, and an alarm has been added to notify the user if DynaJet IC7140 does not support Advanced Turn Compensation.

## Fixes:

- Corrects problem where the resolution of the pressure graph was insufficient for Air Induction (AI) nozzles. The graph has new scaling that improves resolution.
- Corrects problem when in Droplet Mode (using Calculated Flow Mode) where target application rates sent from the rate controller to the Spot Spray system and then altered by the Spot Spray system were not transmitted back to the rate controller.
- Corrects problem where the system could lose communication with the UT & rate controller when stepping through the driver diagnostics page, on systems with a large number of nozzles.

## DynaJet IC7140 v1.30

September 2023

### Associated Documentation:

- Manual 98-05347 R2
- Software Update 98-01571 R1
- DynaJet Valve Maintenance Instructions 98-01580 R1

### New Features:

- Spraying is now possible in Automatic mode even if expected DynaJet Valves are not detected by the system. The user is warned with a 'Limited Functionality' alarm at power up, when spraying is first activated, and again if the number of missing valves changes. Missing valves will stay off in the boom visualization.
- If pressure information or expected driver modules are missing, operation is now possible, but in Manual mode only. The user is warned with a 'Limited Functionality' alarm at power up, and when spraying is first activated.
- A new alarm has been added to warn the operator if the DynaJet IC7140 has lost communication with the TCP client. Only used for Spot Spray applications.
- New TCP diagnostic page shows TCP status with the client. Only used for Spot Spray applications.
- Alive LED is now functional. DM-02 hardware only.
- Ethernet LED is now functional on machines running Spot Spray applications.

## Fixes:

- Fixed stability issue sometimes seen when DynaJet IC7140 was running at 30% duty cycle that could cause DynaJet IC7140 to briefly set the duty cycle to 100% then back to 30%.
- An automated process of calibrating the gyro will be performed if the sprayer is at a standstill for more than 10 seconds. This will prevent drift from the gyro if spraying continuously for more than approximately 6 hours
- Corrects problem where rates exceeding 429 l/ha were not possible.
- The End User License Agreement is no longer displayed at every powerup. The agreement is in the User Manual 98-05347.
- Turn compensation status is shown as a new icon that advises the current state, rather than the state that will become active if the icon is pressed, as was the case in earlier versions.
- Corrects problem where if DynaJet IC7140 lost communication with all driver modules it could crash and lose communication with the UT.
- Corrects problems where DynaJet IC7140 could potentially start up in Manual mode even though it was in Automatic mode during power down. Now DynaJet IC7140 will start up in the mode that was active immediately prior to the last power down.
- Corrects problem where the DynaJet Valve count in the System Overview page could be wrong.
- Replaces the display of Duty Cycle on the work page with the display of Flow %. 100% Flow is now displayed when the DynaJet valves are at the max. configured duty cycle. The user will experience a smoother transition across the entire dynamic flow range, and 50% flow is now much closer to half of the max flow than was the case with the previous presentation of Duty Cycle.

## DynaJet IC7140 v1.21

December 2021

### Associated Documentation:

- Manual 98-05347 R1
- Software Update 98-01571 R1
- E-ChemSaver Maintenance Instructions 98-01580 R0

### New Features:

- DynaJet IC7140 operation modes have been reduced to only two – Automatic and Manual – making setup and operation much easier for the operator. All other background mode settings are automatically pulled from the rate controller.
- Enabled DHCP server for Spot Spraying systems to connect.
- IP-address is shown in the about page – Spot Spray applications only
- TeeJet AccuPulse® TwinJet nozzles added to the nozzle selection list
- User settings can be reverted to factory settings
- Diagnostic pages have been added for DynaJet IC7140 ISO proprietary communication protocol
- The DynaJet Valve model on the machine can now be selected in the UI, thereby allowing the system to maximize performance for each valve model
- On the System Overview page both the detected and the expected number of DynaJet Valves are now shown.

## Fixes:

- Turn compensation visualization when using small nozzles has been improved considerably.
- Corrects problem where a missing pressure sensor error wasn't reset correctly

## DynaJet IC7140 v1.11

December 2020

**IMPORTANT!** Notes regarding USB Drive updates from v1.01 to v1.11

- Standard Turn Compensation requires an unlock code in v1.11. A no-charge unlock for Standard Turn Compensation is available for all v1.01 customers upgrading to v1.11. If upgrading from v1.01 to v1.11 please plan ahead and provide TeeJet Technologies with the IC7140 serial number so an unlock code can be provided.
- Doing a USB Drive update from v1.01 to v1.11 will not add the new languages available in v1.11.  
A second USB Drive update is required to add the new languages. <https://www.teejet.com/support/software.aspx>

Associated Documentation:

- Manual 98-05347 R1
- Software Update 98-01571 R1
- E-ChemSaver Maintenance Instructions 98-01580 R0

New Features:

- Individual Nozzle Shutoff (INS) – Supports the maximum number of boom sections that the ISOBUS Rate Controller (CF) and the ISOBUS Task Controller (TC) support, up to a maximum of 100 boom sections. Potentially 1 nozzle = 1 boom section.
  - Requires: i) TeeJet IC35 v1.00 rate controller or ii) TeeJet IC45 rate controller, or iii) a Third-Party rate controller that has implemented TeeJet Proprietary Protocol Rev10\*, or iv) a Third-Party rate controller that has implemented TeeJet DynaJet OEM-2 CAN protocol Rev8\*.
  - Requires: Purchase of an Unlock Code (unless 1 boom section=1 nozzle and the total number of nozzles is ≤30)
- Advanced Turn Compensation – Tight integration between DynaJet and the Rate controller results in the correct application rate being applied during turns when some boom sections are shutoff such that the boom is an asymmetric configuration
  - Requires i) TeeJet IC35 v1.00 rate controller or ii) TeeJet IC45 rate controller, or iii) a Third-Party rate controller that has implemented TeeJet Proprietary Protocol Rev10\*, or iv) a Third-Party rate controller that has implemented TeeJet DynaJet OEM-2 CAN protocol Rev8\*.
  - Requires the purchase of an unlock code
- Flow Mode – IC7140 controls the application rate (flow) by varying the PWM Duty Cycle while the rate controller controls the pressure by varying the speed of the solution pump. The rate controller sends the target application rate to the IC7140, and the IC7140 sends the target pressure to the rate controller.
  - Requires: Hydraulic speed control of a Centrifugal solution pump and a solution regulating valve. Note: Piston & Diaphragm solution pumps are not supported in this release.
  - Requires: i) TeeJet IC35 v1.00 rate controller or ii) TeeJet IC45 rate controller, or iii) a Third-Party rate controller that has implemented TeeJet Proprietary Protocol Rev10\*, or iv) a Third-Party rate controller that has implemented TeeJet DynaJet OEM-2 CAN protocol Rev8\*.
- Flow Feedback – When the solution flow rate drops below the minimum rating for the rate controller flowmeter the rate controller can continue to control the flow using flow data calculated by the IC7140.
  - Requires: i) TeeJet IC34 v2.03 rate controller, or ii) TeeJet IC35 v1.00 rate controller or iii) TeeJet IC45 rate controller, or iv) a Third-Party rate controller that has implemented TeeJet Proprietary Protocol Rev10\*, or v) a Third-Party rate controller that has implemented TeeJet DynaJet OEM-2 CAN protocol Rev8\*.
- Add 5 pairs of pre-set gain settings to conveniently handle gain changes that may be needed to accommodate different nozzles, application rates, and speeds.
- New Languages – A IC7140 delivered with v1.11 from the factory or those units updated with a factory-type install will support all the languages.
  - Doing a USB Drive update from v1.01 to v1.11 will not add the new languages available in v1.11. A second USB Drive update is required to add the new languages.
  - Non-English languages are only supported by the IC7140 if the ISOBUS Universal Terminal (UT) to which the IC7140 is connected also supports the target language.
  - New Languages Added:
 

– BG [Bulgarian / Български]	– HU [Hungarian / Magyar]	– PT-BR [Portuguese BR-Brazil /
– CZ [Czech / Česky]	– IT [Italian / Italiano]	Português BR-Brasil]
– DA [Danish / Dansk]	– LV [Latvian / Latvietis]	– RO [Romanian / Română]
– DE [German / Deutsch]	– LT [Lithuanian / Lietuviškai]	– RU [Russian / Русский]
– ES [Spanish / Español] (Latin American)	– NL [Dutch / Nederlands]	– SK [Slovak / Sprák]
– ET [Estonian / Eesti]	– NO [Norwegian / Norsk]	– SV [Swedish / Svenska]
– FI [Finnish / Suomi]	– PL [Polish / Polski]	– UK [Ukrainian / Українська]
– FR [French / Français] (France)		
- Rate Controller Communication of Number of Boom Sections, Nozzles per Boom Section, and Nozzle Spacing – Data will be automatically populated in IC7140 if that data is available from the rate controller.
  - Requires i) TeeJet IC35 v1.00 rate controller or ii) TeeJet IC45 rate controller, or iii) a Third-Party rate controller that has implemented TeeJet Proprietary Protocol Rev10\*.
- 100% Duty Cycle Softkey – Added in Manual Mode for 1-button access to 100% Duty Cycle (full open) of the solenoids.
- DynaJet Disengage Mode Softkey – Added for 1-button activation of a DynaJet Disengage Mode.
  - An OEM setting determines if the Disengage Mode results in solenoids being driven at 100% (full open) or 0% (closed).
- No Pressure Interface [78-05137] Required – The boom pressure sensor can now be connected directly to an ADC input on the IC7140.
- Multiple changes to align nozzle specifications with international standard ISO 25358, including but not limited to changing the Coarse droplet size category color from Blue to Green, and the Very Coarse droplet size category color from Green to Blue. Previous alignment of nozzle specifications was with ASABE Standard S572.
- System detects if individual solenoids are not opening completely and warns the operator. Note: this is an OEM enabled feature that is disabled by default.

- Added OEM setting that determines the solenoid state as 100% (open) or 0% (closed) when system is in error state.
- Significant changes to the way alarms and warnings work including a reduction in the number of full-screen alarms. These changes improve the user experience while further enhancing the ability for users to diagnose and troubleshoot system errors.
- Updated from ISO11783 Working Set Version 3 to Version 4
- Speed Message Additions and Updates
  - A system now can use:
    - NMEA2000 speed messages (ISO\_PGN\_NMEA\_COG\_SOG, PGN 0x01F802, 129026d)
    - Machine Selected Speed messages (ISO\_PGN\_MACHINE\_SELECTED\_SPEED, PGN 0x00F022, 61474d)
  - System automatically selects which ISOBUS speed message to apply, based on the following priority:
    - Machine selected speed (0x00F022)
    - Ground based speed (0x00FE49)
    - Wheel based speed (0x00FE48)
    - Vehicle speed (0x00FEE8)
    - NMEA speed (0x01F802)

\* The features supported by a Third-Party rate controller manufacturer who has implemented TeeJet Proprietary Protocol Rev10 or TeeJet DynaJet OEM-2 CAN protocol Rev8 is at the discretion of that manufacturer. Please check with the Third-Party rate controller manufacturer to confirm feature availability and functionality.

#### Fixes:

- Corrects problem where deleting and reloading the object pool in the same power cycle resulted in the boom status not being reported correctly.
- Multiple changes to text content, format, soft-keys and icons to make the User Interface easier to understand and operate
- Coarse Gain renamed to Proportional Gain, and Fine Gain renamed to Derivative Gain.
- Proportional Gain setting now has the range 1-30.
- Lower limit for Derivative Gain (formerly called Fine Gain) changed from 1 to 0.
- Multiple improvements to better handle different resolution UTs and UTs without touchscreen
- Turn compensation cannot be enabled if the UT is not broadcasting a valid ISOBUS speed message, and the system will broadcast an error message and disable Turn Compensation if valid ISOBUS speed messages are lost while Turn Compensation is active.
- Corrects problem where speed source 0x00FEE8 previously was interpreted as vehicle traveling in reverse, which in turn prevented turn compensation from working
- Operation Mode settings including Pressure Adjustment are restored after a power cycle.

## DynaJet IC7140 v1.01

April 2020

#### Associated Documentation:

- Manual 98-05347 R0

#### Key Features and Benefits:

- Global first release of the DynaJet IC7140 series
- Turn Compensation – accurate application across the boom while spraying around curves
- 3 operation modes:
  - Droplet Mode – controls to a target droplet size range
  - Pressure Mode – controls to a target boom pressure
  - Manual mode – controls to a target PWM Duty Cycle
- US & Metric units
- Hardware support
  - Maximum 30 boom sections
    - One Boom Interface Module (BIM) accommodates Booms 1-15
    - Second BIM required for Booms 16-30
  - Single Sensor bus
  - Dual and 8-output drivers
- 5 selectable TeeJet Nozzle favorites
- Demo Mode
- Diagnostic pages
- International English language only



[www.teejet.com](http://www.teejet.com)

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