1100 SERIES MECHANICAL PULSE METER
METRO MECÁNICO DEL PULSO DE 1100 SERIES
MÈTRE MÉCANIQUE D'CImpulsion DE 1100 SÉRIES

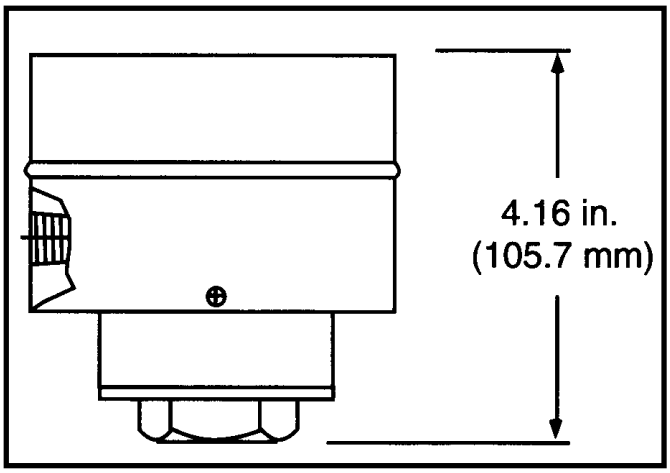
Parts and Technical Service guide
Guía de servicio técnico y recambio
Guide d'instructions et pièces de rechange

Ref.: **1061 QUARTS**
1062 PINTS
1066 LITERS
1059 GALLONS

Description/ Descripción/ Description

E

Inline Mechanical Pulsing Meter for SAE 5 to 50 motor oils, SAE 80 to 240 gear oils and ethylene glycol. Provides 10 electronic pulses per unit of measure via an externally powered low voltage microswitch, and available for Pint, Quart, Liter and Gallon measure. This meter is intended for use on the Samson DFC system and other compatible systems. Available in Forward Flow only, and must be protected with a Pressure Relief Valve.



SP

Metro de pulsación mecánico en línea para los aceites del motor del SAE 5 a 50, aceites del engranaje del SAE 80 a 240 y glicol de etileno. Proporciona 10 pulsos electrónicos por la unidad de la medida vía una microconmutador externamente accionada de la baja tensión, y disponible para la medida de la pinta, del cuarto de galón, del litro y del galón. Este metro se piensa para el uso en el sistema de Samson DFC y otros sistemas compatibles. Disponible en flujo delantero solamente, y debe ser protegido con una válvula de descarga de presión.

FR

Mètre de palpitation mécanique intégré pour des huiles de moteur de SAE 5 à 50, huiles de vitesse de SAE 80 à 240 et éthylène-glycol. Fournit 10 impulsions électroniques par unité de mesure par l'intermédiaire d'un microcontact extérieurement actionné de basse tension, et disponible pour la mesure de pinte, de quart, de litre et de gallon. Ce mètre est prévu pour l'usage sur le système de Samson DFC et d'autres systèmes compatibles. Disponible dans l'écoulement vers l'avant seulement, et doit être protégé avec une valve de décompression.

Installation - Operation/ Instalación – Modo de empleo/ Installation – Mode d'emploi

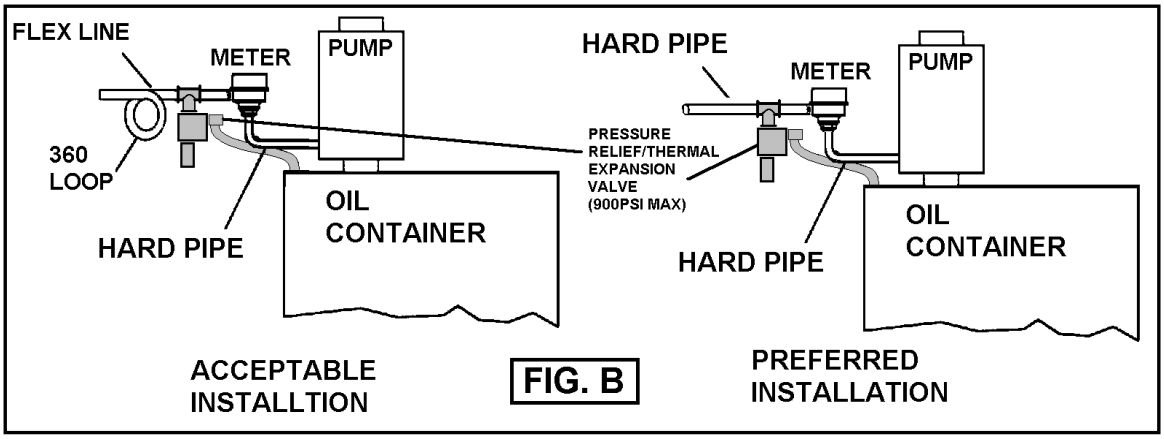


FIG. B

E

Install the Meter with a rigid connection on hard piping at the outlet of the pump. *If installed inline with flex hose be sure to loop the hose and secure it to the wall.* The Meter is not able to tolerate significant side loading and will break after installation if not connected properly. See Figure B. Always install this meter with a pressure relief/thermal expansion valve.

Use the correct wire to connect back to the DFC (Samson 1060 or 1060-3) unit. For wire runs less than 50 feet, the use of 'telephone cable' is acceptable, but any distance longer than this requires higher quality wire for good performance. For 50 to 400 foot wire runs use 18-gauge stranded wire, and for 50 to 600 foot wire runs use 16-gauge stranded wire. Belden manufactures a range of products that are suitable for this application; 846X and 862X (X = the code for the number of conductors) are recommended. Attach the two wires to the two outermost spade terminals of the switch located under the plastic cap of the meter – there are three terminals – *do not use the middle terminal*. At the DFC box connect the wires to the Solid Red wire and the Red with White Tracer wire.

SP

Instale el metro con una conexión rígida en la tubería dura en la enchufe de la bomba. Si está instalado en línea con la manguera de flexión sea seguro colocar la manguera y asegurarla a la pared. El metro no puede tolerar el cargamento lateral significativo y se romperá después de la instalación si no conectada correctamente. Vea la Figura B. Siempre instalar este metro con una válvula de la extensión de la presión relief/thermal. Utilice el alambre correcto para conectar de nuevo a la unidad de DFC (Samson 1060 o 1060-3). Para el alambre funciona menos de 50 pies, el uso de 'telefonee cable' está aceptables, pero cualquier distancia más de largo que ésta requiere un alambre más de alta calidad para el buen funcionamiento. Para los funcionamientos del alambre de 50 a 400 pies utilice el alambre trenzado 18-gauge, y para el uso de 50 a 600 del pie funcionamientos del alambre 16-gauge trenzaron el alambre. Belden fabrica una gama de los productos que son convenientes para este uso; se recomiendan 846X y 862X (X = el código para el número de conductores). Una los dos alambres a los dos terminales exteriores de la espada del interruptor situado debajo del casquillo plástico del metro – hay tres terminales – no utilice el terminal medio. En la caja de DFC conecte los alambres con el alambre rojo sólido y el rojo con el alambre blanco del traslineas.

FR

Installez le mètre avec un raccordement rigide sur la tuyauterie dure à la sortie de la pompe. S'installé en ligne avec le tuyau de câble soyez sûr de faire une boucle le tuyau et de le fixer au mur. Le mètre ne peut pas tolérer le chargement latéral significatif et se cassera après installation si non relié correctement. Voir la figure B. Always installer ce mètre avec une valve d'expansion de la pression relief/thermal. Employez le fil correct pour se relier de nouveau à l'unité de DFC (Samson 1060 ou 1060-3). Pour le fil court moins de 50 pieds, l'utilisation du câble de?Téléphone? Est acceptable, mais n'importe quelle distance plus longtemps que ceci exige un fil plus de haute qualité pour la bonne exécution. Pour des courses de fil de 50 à 400 pieds employez le fil échoué par 18-gauge, et pour l'usage de 50 à 600 de pied courses de fil 16-gauge a échoué le fil. Belden fabrique une gamme de produits qui conviennent à cette application; 846X et 862X (X = le code pour le nombre de conducteurs) sont recommandés. Attachez les deux fils aux deux bornes extérieures de cosse du commutateur situé sous le chapeau en plastique du mètre? Là trois sont-elles bornes? N'utilisez pas la borne moyenne. À la boîte de DFC reliez les fils au fil rouge plein et le rouge au fil blanc de traceur.

Technical data/ Datos técnicos

Maximum Fluid Pressure	Presión de fluido máxima		70 bar (1000 psi)
Minimum Flow	Flujo Mínimo		1.5 l/min (.4 GPM)
Maximum Flow	Flujo Máximo		15 l/min (4 GPM)
Pulses per Unit of Measure			10
Accuracy			± 0.65%

Troubleshooting / Localización de averías

Symptoms	Possible Reasons	Solutions
DFC Ready Light ON. Ready Light at Station ON. No Product flow at Dispense Point.	Y-Strainer clogged with debris.	De-pressurize the system and clean the screen.
	Fluid Solenoid clogged CLOSED with debris.	De-pressurize the system and clean the screen.
	Ready Light and Fluid Solenoid wired in Series Circuit.	Rewire in Parallel Circuit.
	Impulse meter inlet screen clogged.	De-pressurize the system and clean the screen.
	Control Handle inlet screen clogged	De-pressurize the system and clean the screen.
	Pump not operating properly.	Check air supply to pump.
		Bleed air from product piping.
		Check function and wiring of Air Solenoid, if used.
		Diagnose pump using the proper troubleshooting manual.
	No product in bulk tank or drum.	Fill bulk tank or replace drum.
DFC Ready Light ON. Ready Light at Station ON. Product flow at Dispense Point will not stop.	Pre-Set amount too high.	Re-Authorize a dispense using the Operation section of the DFC manual.
	Wiring from DFC to Impulse Meter.	Trace and Repair.
	Wire connections at Impulse Meter	Check for tightness, continuity and that the correct terminals on the Impulse Meter are used.
	Impulse Meter incorrectly plumbed.	IN the bottom, OUT the side.
	Impulse Meter micro-switch out of adjustment.	Readjust and test.
	Impulse Meter micro-switch defective.	Test and replace.
	Impulse Meter rotary cam set screw loose – cam not turning.	Tighten the setscrew.
	Impulse Meter defective.	Replace.
	Fluid Solenoid clogged OPEN with debris.	De-pressurize the system and clean the valve parts and screen.
All Stations always deliver too much product before shutting off.	Operator Error.	Check Pre-Set function - test delivery and re-train operator.
	System Accuracy limitations.	See the Special Diagnostic Procedures on accuracy in the DFC Manual.
	Wiring to Impulse Meter.	Check for tightness and continuity.
	Impulse Meter micro-switch out of adjustment.	Readjust and test.
	Impulse Meter micro-switch defective.	Replace.
	Impulse Meter rotary cam set screw loose – cam turning intermittently.	Tighten the setscrew.
	Impulse Meter defective.	See the special diagnostic procedures in the DFC Manual. If defective replace.
	DFC Console defective.	See the special diagnostic procedures in the DFC Manual. If defective replace.
One or Some of the Stations always delivers too much product.	Operator Error.	Check Pre-Set function - test delivery and re-train operator.
	System Accuracy limitations.	See the Special Diagnostic Procedures on accuracy in the DFC Manual.
	Impulse Meter rotary cam set screw loose – cam turning intermittently.	Tighten the setscrew.
	Fluid Solenoid action impaired by debris.	De-pressurize the system and clean the valve parts and screen.
All Stations always do not deliver enough product before shutting off.	Operator Error.	Check Pre-Set function - test delivery and re-train operator.
	Wiring to Impulse Meter.	Check for tightness and continuity.
	Impulse Meter micro-switch out of adjustment – double clicking.	Readjust and test.
	Air leaks in Pump suction.	Reseal Pump suction tube.
	Foot valve on Pump missing, not sealed or defective.	Install, Replace, Reseal, or Repair.

△ CAUTION! Follow the Troubleshooting guide for the DFC Console first to determine if there is a problem with the Impulse Meter before using this guide.

Some service problems that can occur are the fault of the meter, but it is important to diagnose the system as a whole to make sure that repair attempts are successful and timely.

The Impulse Meter can be tested for proper operation several ways.

First, as product is pumping through the system, the actuator wheel (the CAM) should be turning at an even pace. If it is not turning at all, this means that there is either an internal meter problem, the meter is backwards in the flow path (look at FIG. B for the correct orientation – in the 'bottom' and out the 'side') or possibly the setscrew on the cam is loose. If the wheel is turning erratically, then either there is an internal meter problem or there could be air in the system. Air in the system will come from a poorly sealed suction tube in the pump, a break in the suction line if the pump is mounted external to the tank, a low oil level below the pickup tube of the pump, or a suction tube longer than two feet not equipped with a foot valve.

Authorize a one unit dispense at the DFC Console. Make a mark on one lobe of the cam and a corresponding mark on the body of the meter, and open the dispense point. At the completion of the dispense, there should have been one unit of product dispensed. The cam mark should have rotated 360° and returned to the original marked position.

△ CAUTION! *Intermittent dispenses where the DFC Console reads correctly but the delivered amount is less than indicated can be caused by the lack of a foot valve on the pump (even with sufficient oil in the tank), or improperly sealed threads on the suction tube allowing air into the system.* **ALWAYS USE A FOOT VALVE ON THE PUMP SUCTION TUBE FOR ALL DFC INSTALLATIONS!!!!**

Second, test the micro-switch with an electrical multi-tester. Disconnect the wires at the Impulse Meter. With the multi-meter set on the smallest Ohms Ω selection, connect the multi-meter leads to the two outermost terminals of the switch. As the oil is pumping through the system the indication on the meter from the switch should show that it is opening and closing (making contact) *as each peak of the actuator wheel passes the switch arm*. The micro-switch carrier allows minor adjustments to bring the switch back into proper operation.

△ CAUTION! *Consistent dispenses over (more than) the indicated amount on the DFC Console means that the micro-switch is probably out of adjustment, if the Fluid Solenoid is working properly.*

Third, check the wires from the Impulse Meter back to the DFC Console. Disconnect the wires from the DFC and the Meter. Twist the wires together at the Meter end; then check for continuity at the DFC end between the two wires. The multi-meter should read less than a couple of Ohms. Separate the wires and check again for continuity between the wires, there should be infinite resistance. Check for continuity between each of the wires and the building ground, the multi-meter should show infinite resistance. If any of these readings are incorrect, check the entire length of wire for missing insulation, breaks, or replace it entirely if it is old – it may have an intermittent failure.

Fourth, check the DFC Console itself. Authorize a dispense of one unit, then take the Solid Red and the Red/White Tracer wires and touch them together 10 times. Each time you touch them together the box should register one pulse, and the red 'ready' light on the face of the DFC should go out immediately after the tenth contact.