Model 4110

Overspeed Sensing Valve

APPLICATIONS

OVERSPEED PROTECTION FOR ENGINES AND ROTATING EQUIPMENT USED IN MANY INDUSTRIES:

- **OFFSHORE**
- **OIL & GAS**
- **MARINE; OIL SPILL RECOVERY**
- **GAS TRANSMISSION**
- **CONSTRUCTION**
- **MINING**

FEATURES

- **DEPENDABLE PROTECTION FROM OVERSPEED FOR ENGINES AND ROTATING EQUIPMENT**
- **AVAILABLE SETTINGS FROM 800-4200 RPM IN SEVERAL MOUNTING ARRANGEMENTS**
- **TOP MOUNTED TACHOMETER DRIVE**
- **FACTORY PACKED BEARINGS**
- **GULFPROOFED (anodized aluminum) CONSTRUCTION**
- **COMPATIBLE WITH OTHER AMOT SAFETY CONTROL SENSORS**
- **OPERATES ON LUBE OIL OR AIR**

BENEFITS

- **REDUCES RISK OF ENGINE OVERSPEED DAMAGE AND/OR INJURY TO PERSONNEL**
- **ADAPTS TO MOST POPULAR ENGINE MAKES AND MODELS WITH EASE**
- **CAN BE MOUNTED "IN LINE" WITH EXISTING TACHOMETER CABLE AND TACHOMETER**
- **EXTENDS LIFE OF VALVE**
- **PROVEN CORROSION RESISTANCE... EVEN IN OFFSHORE ENVIRONMENTS**
- **AMOT PROVIDES SOLE SOURCE RESPONSIBILITY FOR SHUT DOWN SYSTEM**
- **NO ELECTRICITY REQUIRED; FAIL SAFE**

OPERATION

Model 4110 uses a precision fly weight speed sensor to vent a pneumatic or hydraulic signal (via a built-in two-way valve) at a preset RPM.

SPECIFICATIONS

Adjustable Range ..... 800 - 4200 RPM
Repeatability ..... +/- 2%
Body ..... Gulfproofed (Anodized) Aluminum
Internals ..... Steel & Stainless Steel
Seals ..... Viton (oil version); Buna N (air version)
2-Way Valve Thread ..... 1/4" NPT
Cv ..... .65
Maximum Valve Pressure ..... 125 psi
Mounting Thread (std.) ..... 7/8 - 18 heavy duty SAE
(see model code table for special mounting adapters)
External Tach Mounting Thread . 7/8 - 18 heavy duty SAE
Shaft Diameter ..... See Model Coding, Table "E"
Minimum Trip Point ..... + 5% over rated range
Approx. Weight ..... 6 lbs.

HOW TO ORDER

When ordering, please order one of the basic models shown below. Also specify the Speed Range: 1, or U (see Table B), and the Shaft Size, (see Table E.) Shaft F is standard.

4110B2 For oil service only. (Automatic reset)

4110B3 For air service only. (Has manual reset)

If required, one or more of the following special features may be ordered:

1. Equipped with extended mounting adapter.
2. Equipped with square drive cable and special mounting adapters for Detroit Diesel Allison engines. (Give engine Model No. and RPM.)
3. BSP Parallel Port Threads (instead of NPT.) Available from U.K. factory only.
4. Shipped with right angled speed adaptor:
   - 1:1 Order P/N 11070L001
   - 1:1.5 Order P/N 11070L002
   - 1:2.0 Order P/N 11070L003
   - 1:3.0 Order P/N 11070L005

The unit may be ordered using the full description as shown above or by constructing a Model No. using the Model Code System.

MODEL CODE SYSTEM

4110B 2 U 2 0 F ( )

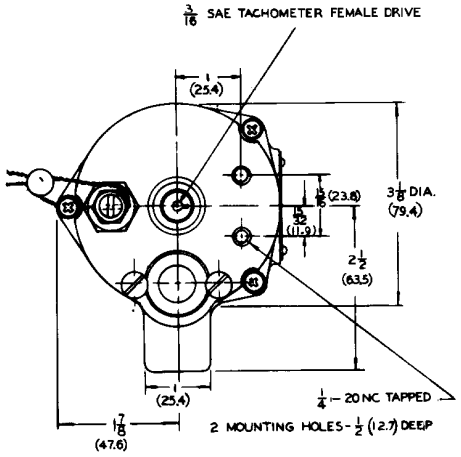
Basic Model No.

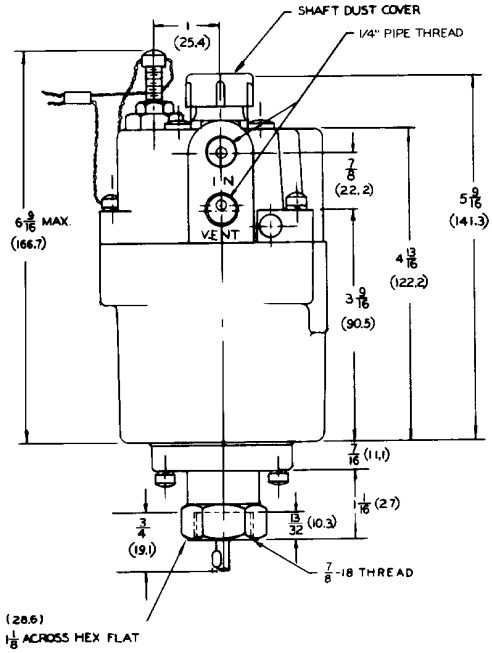
( ) Special Requirements (MTO) Made-To-Order

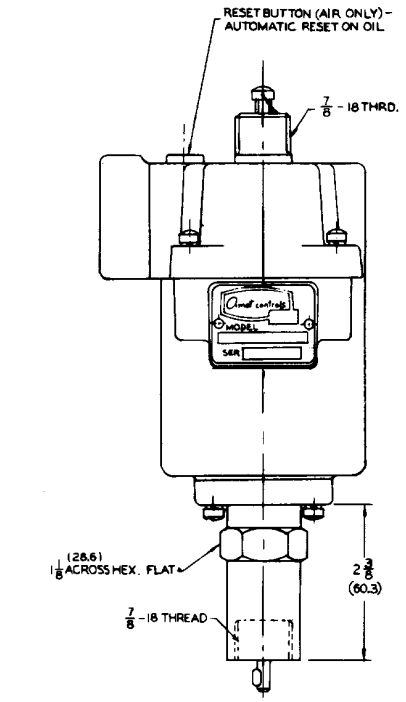
TABLE A	TABLE B	TABLE C	TABLE D	TABLE E
Type of Service Reset & Seals Code No.	Speed Range Code No.	Threads & Finish Code No.	Mounting Adapter Code No.	Shafts, Extended Mounting Adapter or Alternate Mounting Adapter Codes
2- Oil Service Automatic Reset Viton	1- 800 - 1200 RPM	2- NPT Threads Gulfproofed	0- Standard Mounting Adapter (for use with Table E, Codes E, F, & H	E- SAE .155/.150 - Gulfproofed
3- Air Service Manual Reset Buna N	U- 1201 - 4200 RPM	*4- BSP (PL) Threads Gulfproofed	1- Alternate Mounting Adapter (for use with Table E, Codes S & T)	F- SAE .188/.183 - Gulfproofed
	(Unset)			H- Extended Mounting Adapter with SAE .188/.183 - Gulfproofed
				S- "N" Type Mounting Adapter with Flexible Shaft - Gulfproofed For 3,4, 6-71 In-line Detroit Diesel
				T- "P" Type Mounting Adapter with Flexible Shaft - Gulfproofed For 6,8,12,16V71 Detoit Diesel

* Available from U.K. factory only.
Indicates Special Order.

DIMENSIONS







INSTALLATION

Model 4110 Speed Valves may be mounted in any position. Care must be taken to assure that the SAE drive shaft tang is properly located in the mating slot of the engine tachometer drive. The original engine tachometer drive cable can then be attached to the top of the unit which is equipped with a standard 3/16 SAE tachometer female drive with a 7/8-18 SAE mounting arrangement. Secure connections after determining that the drive shafts are properly located in the mating bores. On the top of the valve are two 1/4-20 NC X 1/2" deep mounting holes for use in securing a stiffening bracket.

Tighten all tubing and hose connections securely to avoid leakage. Apply a quality thread sealant such as Loctite™ Pipe Sealant to pipe thread connections. Avoid introducing contaminants into the system. The vent port SHOULD NOT be piped to a common vent header.

ADJUSTMENT

Trip point is field adjustable within RPM of speed range originally selected. Loosen locknut and turn adjusting screw clockwise to increase and counter-clockwise to decrease set point.

NOTE:

Maximum allowable RPM Range 1 is 3000 RPM continuous and 3600 RPM intermittent (1/2 hour.)

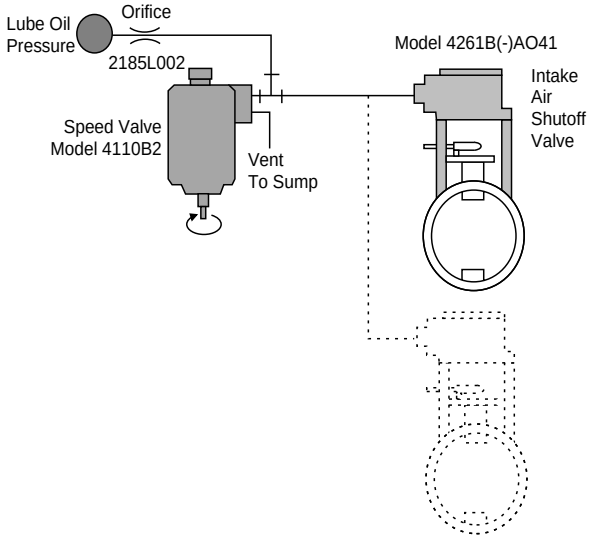
Maximum allowable RPM Range U is 6500 RPM continuous and 7500 RPM intermittent (1/2 hour.)

Range U comes from the factory with a range of 1201 - 1800. Two springs accompany a Range U 4110: installing the lighter of the two springs yields a range of 1801 - 2800, the heavier a range of 2801 - 4200. To install an alternate spring, remove the spring retaining nut adjacent to the tachometer drive, pull out the installed spring (Reference #24) and replace it with the desired spring.

For all ranges the minimum trip point must be 5% over the rated RPM.

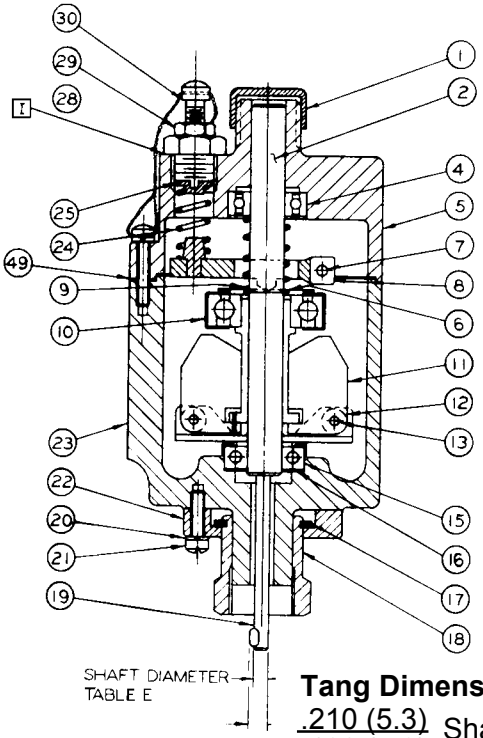
APPLICATION DIAGRAM

- Hydro-Mechanical Runaway Shutdown System



Under normal operating conditions, lube oil runs through the 4110 Speed Valve to AMOT 4261 Intake Air Shutoff Valve. Lube oil pressure holds the 4261 open permitting normal engine operation. When an overspeed condition arises, the 4110 vents off lube oil pressure, causing the 4261 to trip and shut off intake air to the engine. As an extra safety feature, the engine cannot be started again until the air shutoff valve is manually reset.

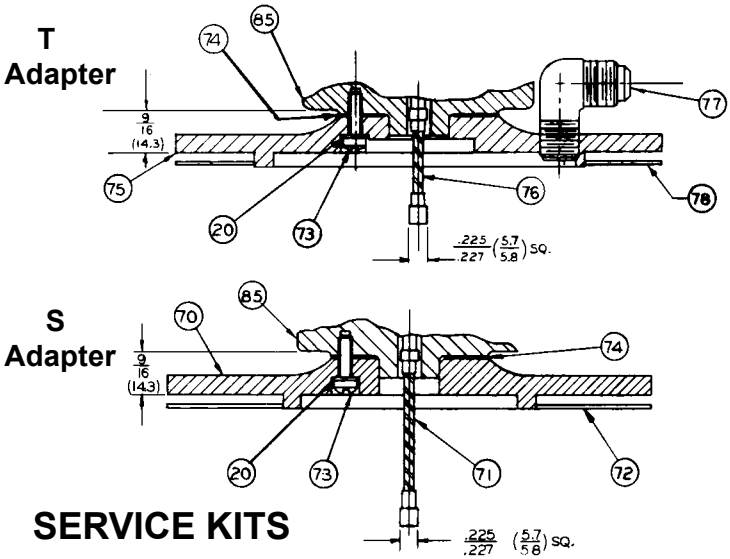
DIMENSIONS (Cont'd)



Tang Dimensions

.210 (5.3) / .190 (4.8) Shaft E

.250 (6.4) / .225 (5.7) Shafts F, H



MAINTENANCE

Properly applied and installed, AMOT Model 4110 Speed Valves require practically no maintenance. An inspection of the units at yearly intervals is adequate to detect and make provision for normal wear. It is recommended that inspection and cleaning be incorporated as a normal preventive maintenance program. Seals and O-rings should be checked for wear, damage, and hardness, and replaced as necessary. Lightly coat the seals and/or O-rings with Dow Corning No. 33 Grease (AMOT Part No. 911L001) before installing them. Other internal parts should be inspected for excessive wear or damage and reworked or replaced as necessary.

Rubber seals and composition gaskets are rated for a shelf life of one year from date of shipment. If adequately sealed from air they may be good for longer periods.

It is recommended that the overspeed trip function of the valve be checked semi-annually by overspeeding the engine.

AMOT designs and tests all its products to ensure that high quality standards are met. For good product life, carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to the equipment being protected or controlled.

SERVICE KITS

Model No. 4110B3 Service Kit No. 9114X001			
Ref. No.	**Qty.**	**Description**	**Part No.**
33	1	Valve Retainer	7443
34	1	O-Ring	353
35	1	O-Ring	270
36	1	Spacer	7482
37	1	Retaining Ring	877L001
38	1	O-Ring	601
39	1	Valve Stem Assembly	7484X
40	1	Retaining Ring	361L004
41	1	O-Ring	251
49	1	Cover Gasket	7665

Model No. 4110B2 Service Kit No. 9114X003			
Ref. No.	**Qty.**	**Description**	**Part No.**
35	1	O-Ring (Viton)	712
40	1	Retaining Ring	361L004
41	1	O-Ring (Viton)	251L001
49	1	Cover Gasket	7665
52	1	Body & Plunger Assy	9433X
53	1	Spring	6612L020
56	1	Pushrod Assembly	9452X
58	1	O-Ring (Viton)	601L001

GASKET KIT FOR ALTERNATE MOUNTING ADAPTERS			
	Gasket	**Quantity**	
Ref. No.	**Part No.**	**"S" Adapter**	**"T" Adapter**
72	5407	1	–
74	7975	1	1
78	5407L001	–	1

AMOT USA
401 First Street
Richmond, CA 94801
Tel: +1 510 236-8300
Fax: +1 510 234-9950

AMOT
Western Way
Bury St. Edmunds IP33 3SZ
Suffolk England
Tel: +44 1284 762222
Fax: +44 1284 760256

AMOT SINGAPORE
10 Eunos Road 8 # 12-06
Singapore Post Centre
Singapore 408600
Tel: +65 6293 4320
Fax: +65 6293 3307