

Overspeed Sensing Valve

Model 4110

Overview

AMOT Model 4110 Overspeed Sensing Valve provides overspeed protection for engines and rotating equipment.

Typical Applications

- Offshore
- Gas transmission
- Oil & gas
- Construction
- Marine, oil spill recovery
- Mining

Key Features and Benefits

- Dependable protection from overspeed for engines and rotating equipment - reduces risk of engine damage and injury to personnel
- Available settings from 800 - 4200 RPM in several mounting arrangements - adapts to most popular engine makes and models with ease. Trip setting is field adjustable.
- Top mounted tachometer drive - can be mounted 'in-line' with existing tachometer cable and tachometer
- May be mounted in any position



Model 4110

Overspeed Sensing Valve

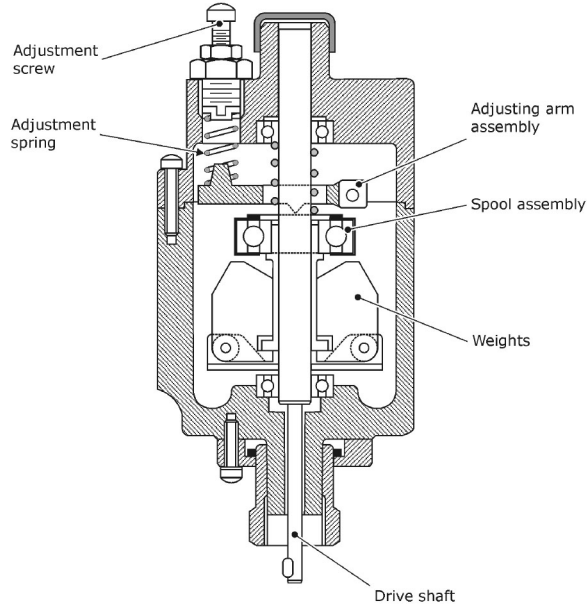
- Factory packed bearings - extends life of equipment
- Gulfproofed (anodized aluminum) construction - proven corrosion resistance even in offshore environments
- No electricity required, fail safe - low cost and simple installation
- Compatible with other AMOT safety control sensors - AMOT provides sole source responsibility for shut down system



Overspeed Sensing Valve - Model 4110

Operation

Basic Operation



The Model 4110 Overspeed Sensing Valve uses a precision flyweight speed sensor to vent a pneumatic or hydraulic signal (via a built-in two-way valve) at a pre-set RPM.

As the drive shaft is turned by the engine, the weights are forced outwards by centrifugal force and move the spool assembly up the drive shaft against the adjusting arm assembly.

When the speed exceeds the preset setpoint, the adjusting arm assembly opens a valve and vents the control pressure.

The set point is adjusted by increasing or decreasing the spring pressure with the adjustment screw.

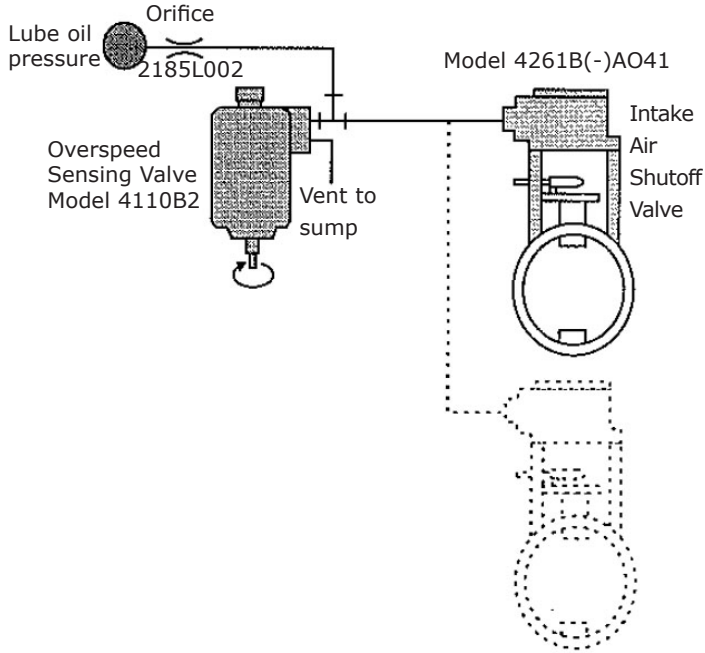
Specification

Adjustable range:	800 - 4200 RPM	
Repeatability:	+/- 2%	
Body:	Gulfproofed (anodized) aluminum	
Internals:	Steel and stainless steel	
Seals:	Viton (oil version),	Nitrile / Buna N
Two-way valve thread:	1/4" NPT	
Flow coefficient:	Kv = 0.56	(Cv = 0.65)
Max. valve pressure:	5.5 bar	(80 psi)
Accuracy:	+/- 5%	
Mounting thread (std):	7/8 - 18 heavy duty SAE	
External tach mounting thread:	7/8 - 18 heavy duty SAE	
Shaft diameter:	See 'How to order' table on page 4	
Approx. weight:	2.73 Kg	(6 lbs)
Maximum allowable RPMs:	Range 1: 3000 RPM Continuous and 3600 RPM Intermittent (1/2 hour) Range U: 6500 RPM Continuous and 7500 RPM Intermittent (1/2 hour)	

Overspeed Sensing Valve - Model 4110

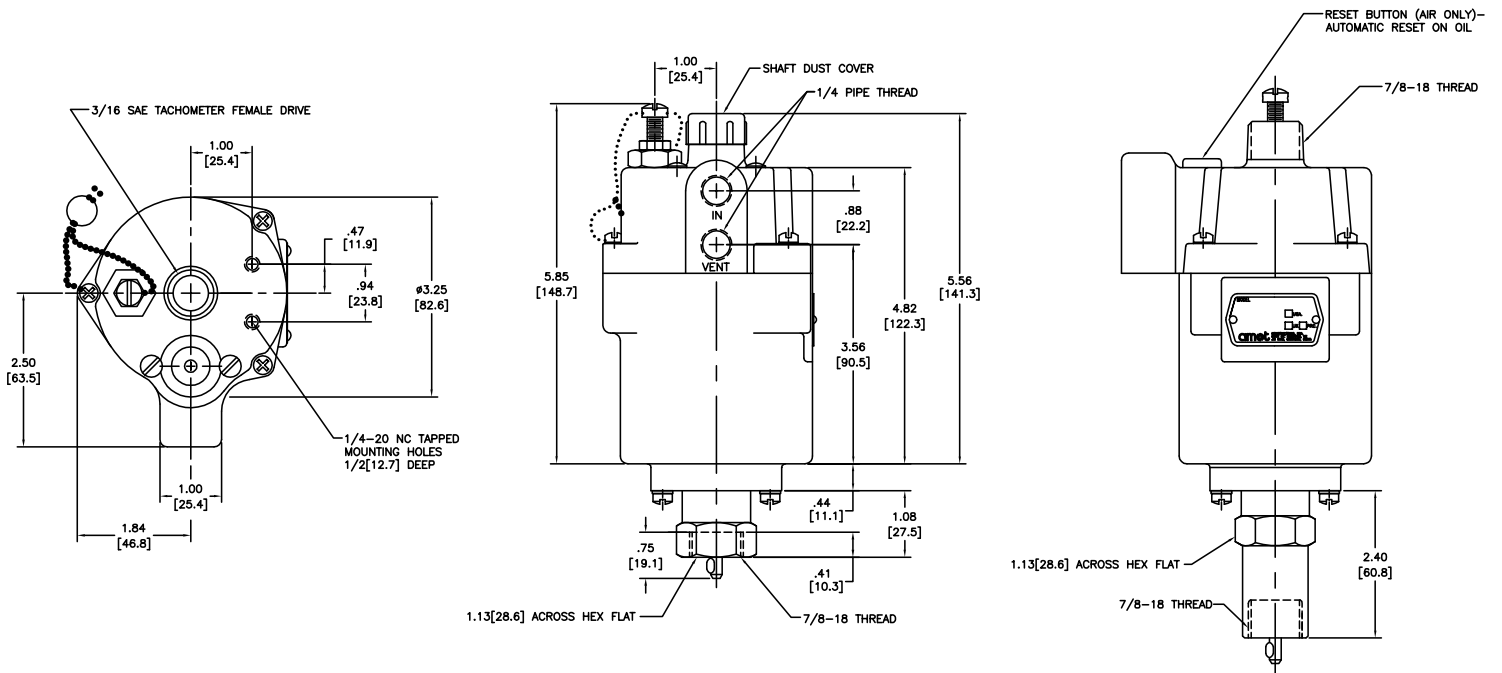
Application Diagram

Hydro-mechanical Runaway Shutdown System



Under normal operating conditions, lube oil runs through the Model 4110 Overspeed Sensing Valve to the AMOT Model 4261 Intake Air Shutoff Valve. Lube oil pressure holds the Model 4261 open, permitting normal engine operation. When an overspeed condition arises, the Model 4110 vents off lube oil pressure, causing the Model 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



Dimensions: inches (mm)

Overspeed Sensing Valve - Model 4110

How to order

Use the table below to select the unique specification of your 4110 Overspeed Sensing Valve.

When ordering, please also specify:

1. Speed Range
2. Shaft Size - Shaft F is standard.

Example Code	4110B	2	2	2	OE	-AA	Comments
Basic Model							
Basic Model	4110B	.	.	.	.	.	Anodized Aluminum Body
Service Type							
Types of Service Reset & Seals	2	.	.	.	.	.	Oil Service Automatic Reset Viton
	3	.	.	.	.	.	Air Service Maunal Reset Nitrile/Buna N
Speed Range in RPM							
Speed Range	1	.	.	.	.	.	800 - 1200
	2	.	.	.	.	.	1201 - 1800
	3	.	.	.	.	.	1801 - 2800
	4	.	.	.	.	.	2801 - 4200
	U	.	.	.	.	.	1201 - 4200
Thread & Finish							
Threads & Finish	2	.	.	.	.	.	1/4" NPT Gulfproofed
Shafts and Mounting Adapter							
Shafts and Mounting Adapter	OE	.	.	.	.	.	SAE - .115/.150 - Gulfproofed
	OF	.	.	.	.	.	SAE - .188/.183 - Gulfproofed
	OH	.	.	.	.	.	Extended Mounting Adapter with SAE - .188/.183 - Gulfproofed
	1S	.	.	.	.	.	Alternative Mounting Adapter with Flexible Shaft - Gulfproofed for 3, 4, 6-71 In-line Detroit Diesel
	1T	.	.	.	.	.	Alternative Mounting Adapter with Flexible Shaft - Gulfproofed for 6, 8, 12, 16 V 71 Detroit Diesel
Special Requirements							
Special Requirements	-AA	.	.	.	.	.	Standard Product
	-***	.	.	.	.	.	Customer special code assigned by factory

Adjustment information

Trip setting is field adjustable within RPM of speed range originally selected. Range U comes from the factory with a spring that has a range of 1201 - 1800 RPM. Two additional springs are shipped with a Range U 4110:

- A lighter spring that has a range of 1801 - 2800 RPM
- A heavier spring that has a range of 2801 - 4200 RPM

To install an alternate spring, remove the spring retaining nut adjacent to the tachometer drive, pull out the installed spring, and replace it with the desired spring.

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

Options

- 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:

Shipped with right angled speed adapter:

- 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 number using the table above.

Overspeed Sensing Valve - Model 4110

Service Kits

Service Kits (Oil Service)

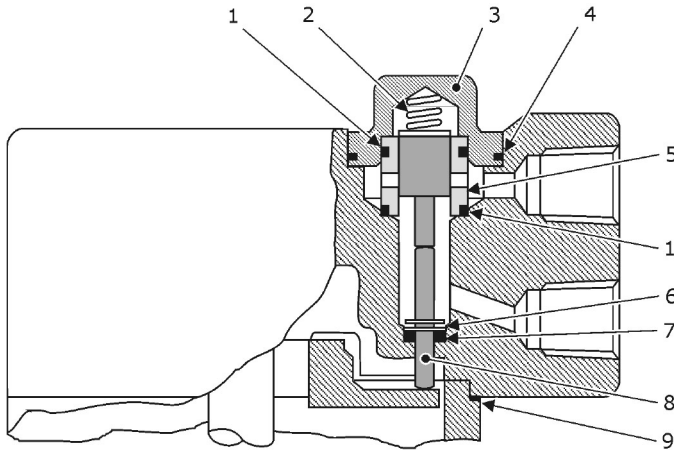


Fig 1

Service Kits (Oil Service). Order part number 9114X003 which includes the following:

Fig 1 Ref	Description	Qty
1	O-ring	2
2	Spring	1
4	O-ring	1
5	Body assembly	1
6	Retaining ring	3
7	O-ring	1
8	Pushrod assembly (including retaining ring)	1
9	Gasket	1

Service Kits (Air Service)

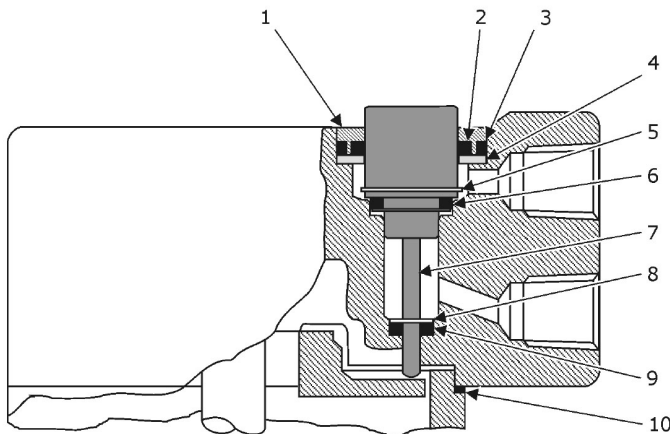


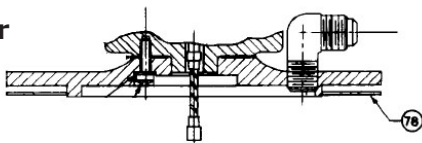
Fig 2

Service Kits (Air Service). Order part number 9114X001 which includes the following:

Fig 2 Ref	Description	Qty
1	Valve retainer	1
2	O-ring	1
3	O-ring	1
4	Spacer	1
5	Retaining ring	1
6	O-ring	1
7	Valve stem assembly	1
8	Retaining ring	1
9	O-ring	1
10	Gasket	1

Gasket Kits for alternate mounting adapters

T Adapter



S Adapter

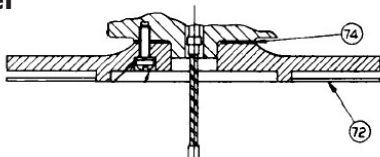


Fig 3

Fig 3 Ref	Gasket part no.	Quantity	
		'S' Adapter	'T' Adapter
72	5407	1	-
74	7975	1	1
78	5407L001	-	1

Americas

AMOT USA
8824 Fallbrook Dr
Houston
TX 77064
USA

Tel: +1 (281) 940 1800
Fax +1 (281) 668 8802
Email sales@amotusa.com

Asia and Australasia

AMOT Shanghai
Rm A308 Building A8
Jiahua Business Center
808 Hongqiao Road
Shanghai 200030
China

Tel +86 (0) 21 6447 9708
Fax +86 (0) 21 6447 9718
Email shanghai@amot.com

AMOT Singapore
10 Eunos Road 8 #12-06
Singapore Post Centre
Singapore 408600

Tel +65 6408 6265
Fax +65 6293 3307
Email singapore@amot.com

Europe and Africa

AMOT
Western Way
Bury St Edmunds
Suffolk, IP33 3SZ
UK

Tel +44 (0) 1284 762222
Fax +44 (0) 1284 760256
Email info@amot.com

AMOT Controls GmbH
Rondenbarg 25
22525 Hamburg
Germany

Tel +49 (0) 40 8537 1298
Fax +49 (0) 40 8537 1331
Email germany@amot.com

AMOT Russia
#34 Shabolovka Street
Building 2
Moscow 115419
Russia

Tel: +7 495 617 12 93
Fax: +7 495 913 97 65