

# 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



**Model 4110**

### Key Features and Benefits

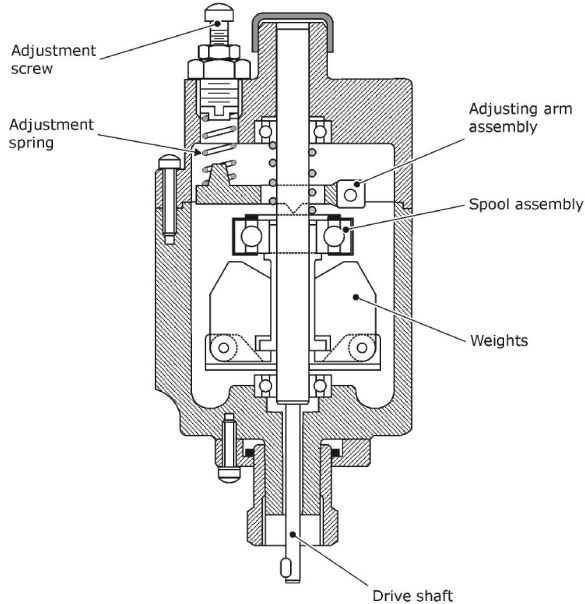
- Dependable protection from overspeed for engines and rotating equipment - reduces risk of engine damage and injury to personnel
- Available settings from 800 - 4200 RPM in several mounting arrangements - adapts to most popular engine makes and models with ease. Trip setting is field adjustable.
- Top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

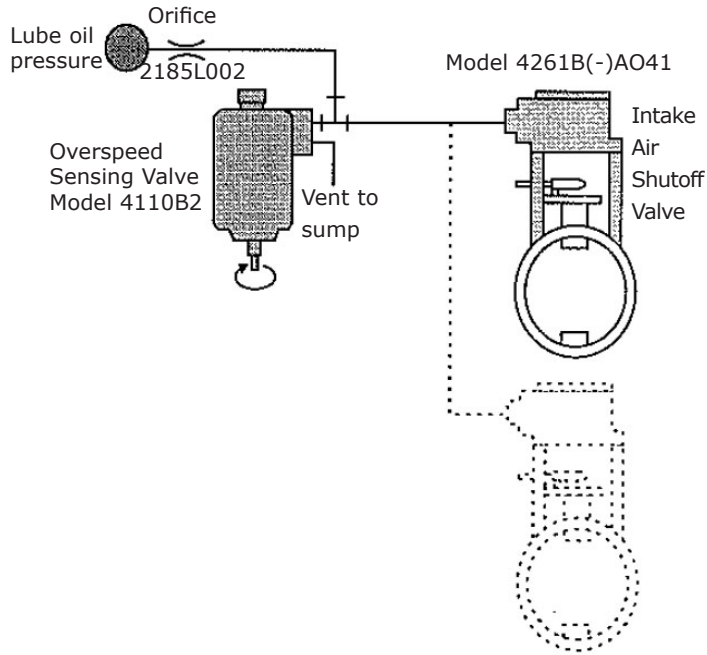
## Specification

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

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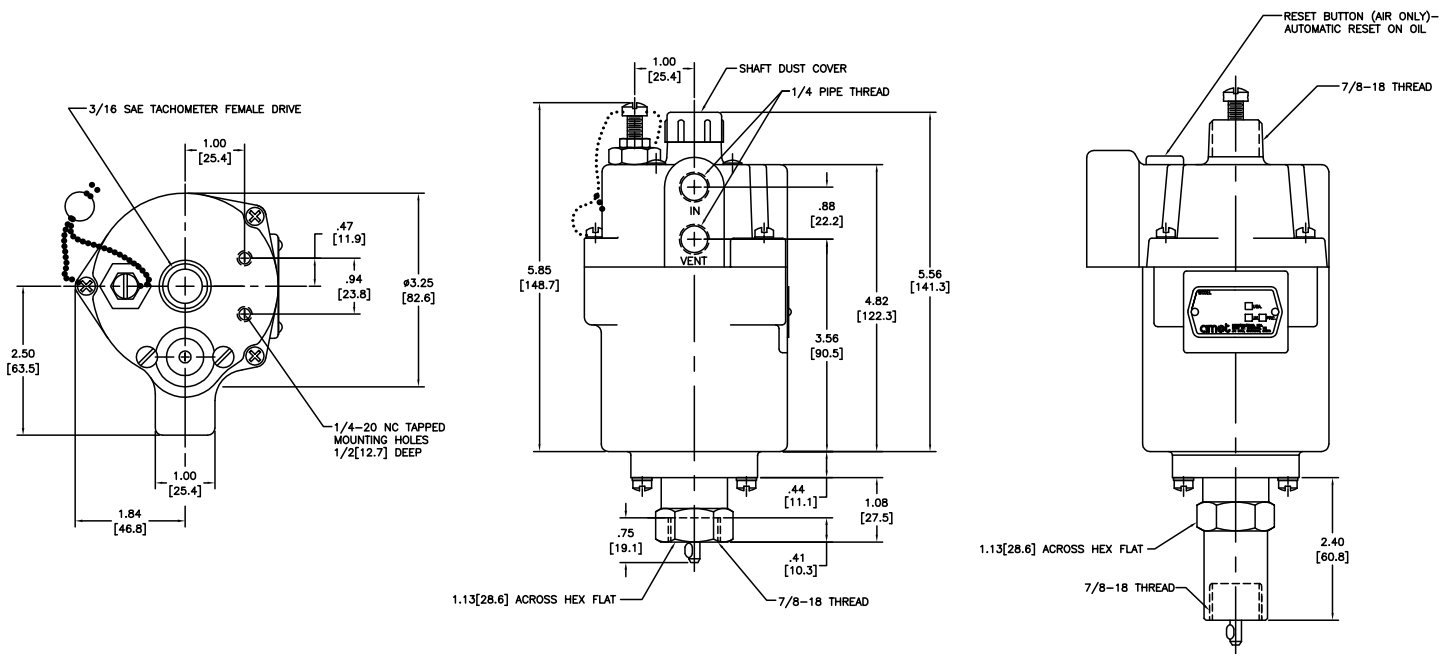
## Application Diagram

### 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)

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## 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
<b>Basic Model</b>							
Basic Model	4110B						Anodized Aluminum Body
<b>Service Type</b>							
Types of Service Reset & Seals		2					Oil Service Automatic Reset Viton
		3					Air Service Manual Reset Nitrile/Buna N
<b>Speed Range in RPM</b>							
Speed Range		1					800 - 1200
		2					1201 - 1800
		3					1801 - 2800
		4					2801 - 4200
		U					1201 - 4200
<b>Thread &amp; Finish</b>							
Threads & Finish		2					1/4" NPT Gulfproofed
<b>Shafts and Mounting Adapter</b>							
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
<b>Special Requirements</b>							
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)

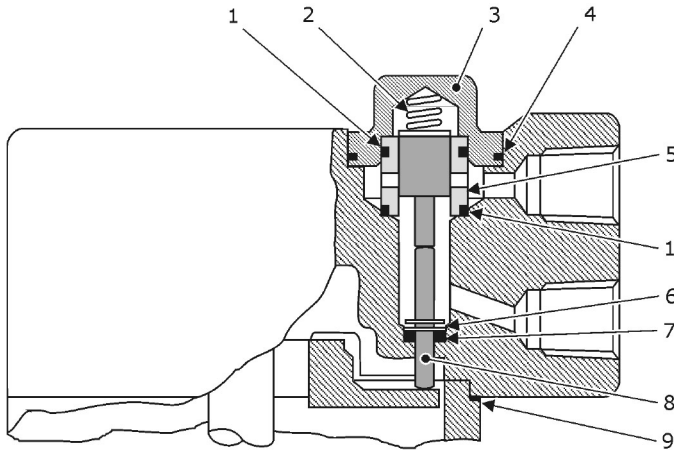


Fig 1

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

Fig 1 Ref	Description	Qty	Part Number
1	O-ring	2	601L001
2	Spring	1	6612L020
4	O-ring	1	712
5	Body assembly	1	9433X
6	Retaining ring	3	361L004
7	O-ring	1	251L001
8	Pushrod assembly (including retaining ring)	1	9452X
9	Gasket	1	7665

### Service Kits (Air Service)

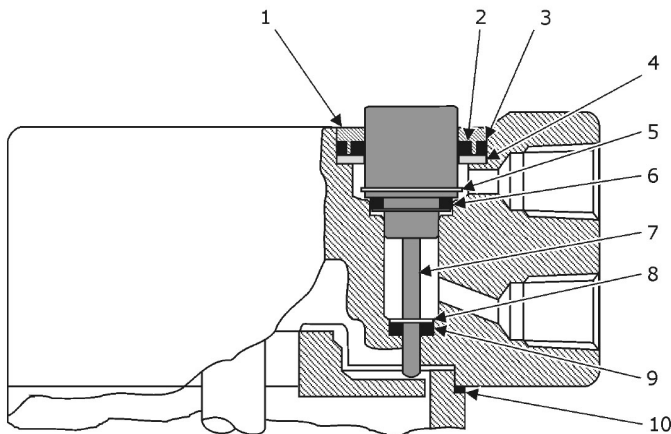


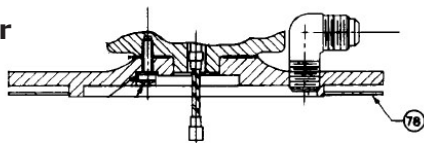
Fig 2

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

Fig 2 Ref	Description	Qty	Part Number
1	Valve retainer	1	7443L001
2	O-ring	1	353
3	O-ring	1	270
4	Spacer	1	7482
5	Retaining ring	1	877L001
6	O-ring	1	601L001
7	Valve stem assembly	1	7484X
8	Retaining ring	1	361L004
9	O-ring	1	251
10	Gasket	1	7665

### Gasket Kits for alternate mounting adapters

#### T Adapter



#### S Adapter

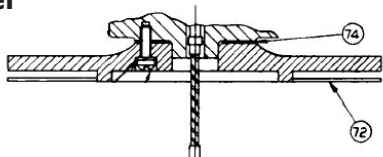


Fig 3

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

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