

# 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
- 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



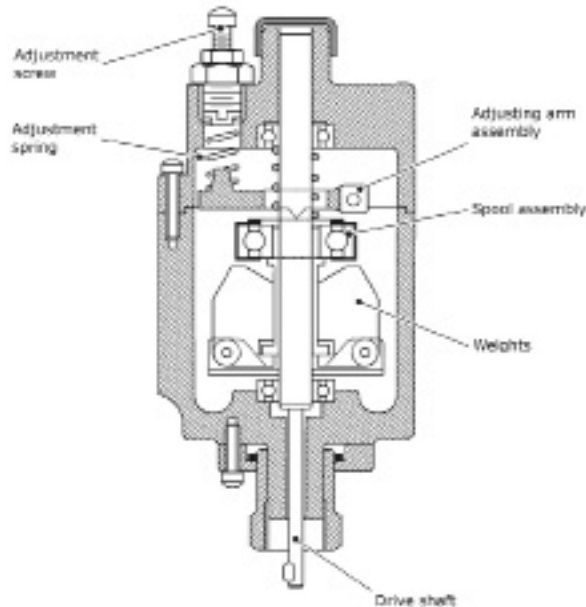
Model 4110  
Overspeed Sensing Valve



# Overspeed Sensing Valve - Model 4110B

## 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.

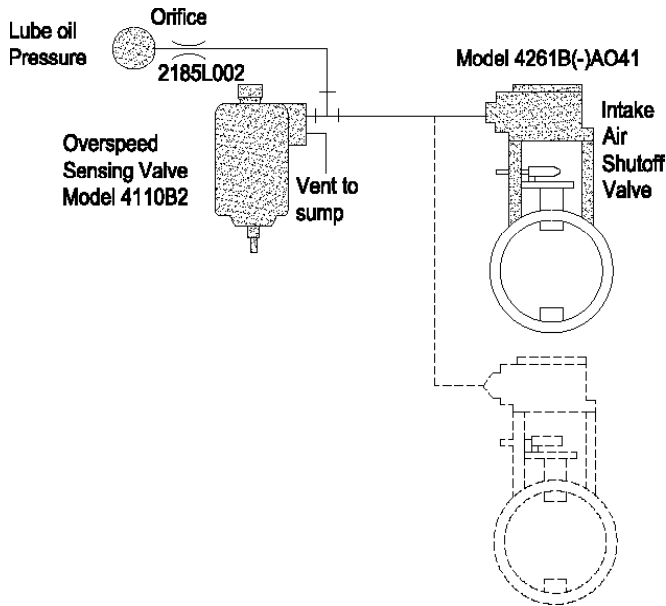
## Specification

<b>Adjustable range:</b>	800 - 4200 RPM	
<b>Repeatability:</b>	+/- 2%	
<b>Body:</b>	Gulfproofed (anodized) 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)	

# Overspeed Sensing Valve - Model 4110B

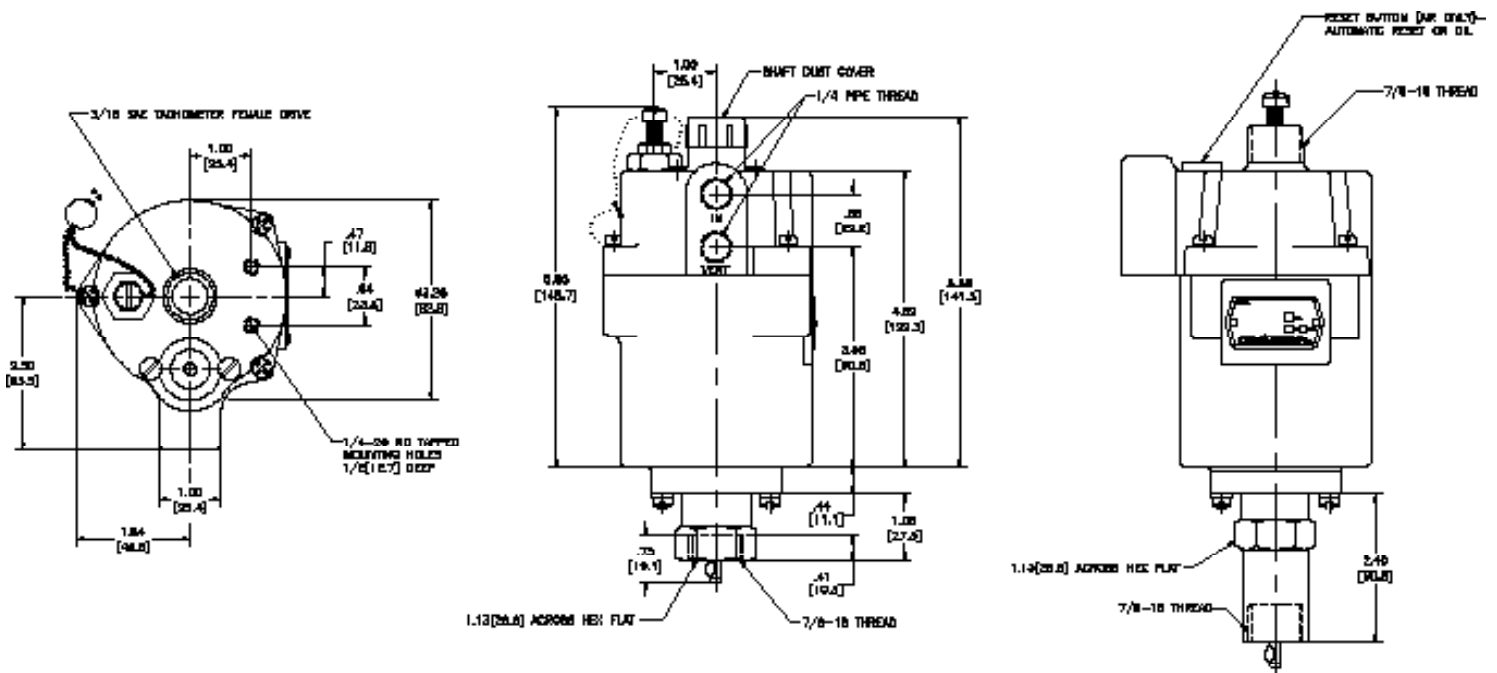
## Application Diagram

### 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 4110B

## 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: **A B C D - E**  
**Model 4110B 3 U 2 0E - AA**

A	Service Type
2	Oil service, Automatic reset, Viton
3	Air service, Manual reset, Nitrile/Buna N

B	Speed Range (RPM)
1	800 - 1200
2	1201 - 1800 (UK only)
3	1801 - 2800 (UK only)
4	2801 - 4200 (UK only)
U	1201 - 4200 (US only)

C	Thread & Finish
2	1/4" NPT Gulfproofed

D	Shafts & Mounting Adapter
0E	SAE - .155/.150 - Gulfproofed
0F	SAE - .188/.183 - Gulfproofed
0H	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

E	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 4110B

## Service Kits

### Service Kits (Oil Service)

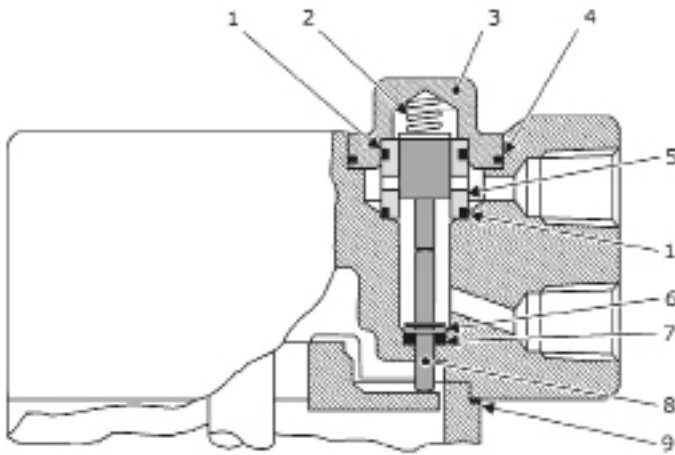


Fig 1

**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)

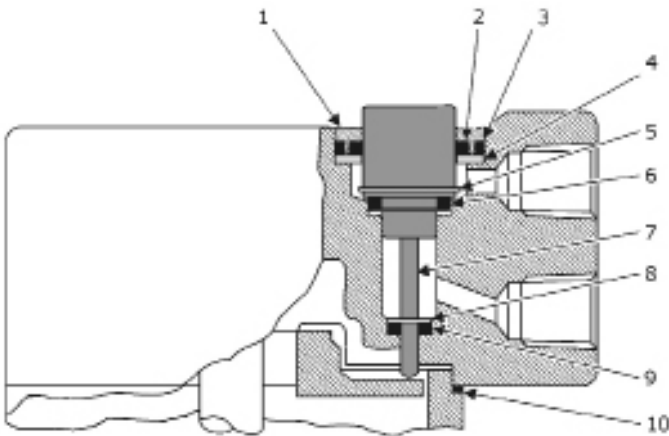


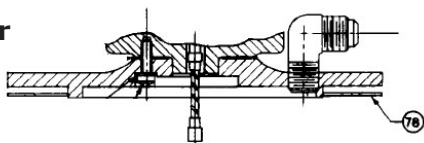
Fig 2

**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

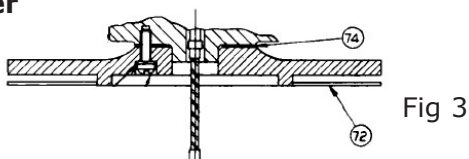


Fig 3

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 4102 - 4104 United Plaza  
1468 Nanjing Road West  
Shanghai 200040  
China

Tel +86 (0) 21 6279 7700  
Fax +86 (0) 21 5237 8560  
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