

## FRONT OIL SEAL REPLACEMENT [SKYACTIV-D 2.2]

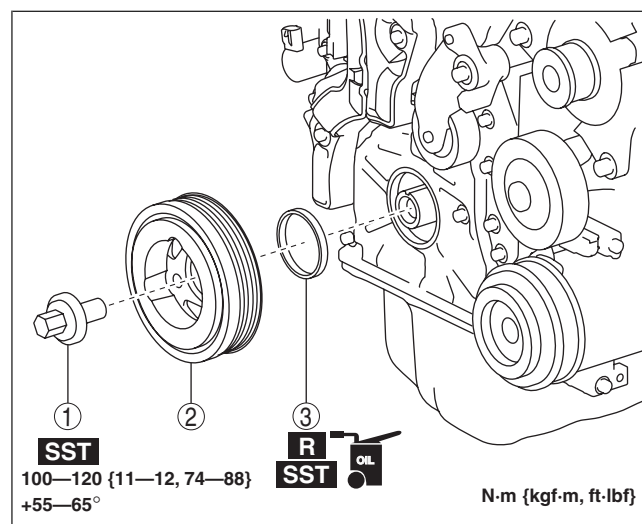
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### Warning

- A hot engine can cause severe burns. Turn off the engine and wait until it is cool before servicing.

1. Remove the front under cover No.2. (See FRONT UNDER COVER No.2 REMOVAL/INSTALLATION.)
2. Remove the splash shield. (See SPLASH SHIELD REMOVAL/INSTALLATION.)
3. Remove the drive belt. (See DRIVE BELT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
4. Remove in the order indicated in the table.
5. Install in the reverse order of removal.

1	Crankshaft pulley lock bolt (See Crankshaft Pulley Lock Bolt Removal Note.) (See Crankshaft Pulley Lock Bolt Installation Note.)
2	Crankshaft pulley
3	Front oil seal (See Front Oil Seal Removal Note.) (See Front Oil Seal Installation Note.)



### Crankshaft Pulley Lock Bolt Removal Note

#### Note

- Perform the crankshaft pulley lock bolt removal with at least one other person.

1. Install the **SST** to the crankshaft pulley using the bolts of the following specification.

#### SST securing bolt specification

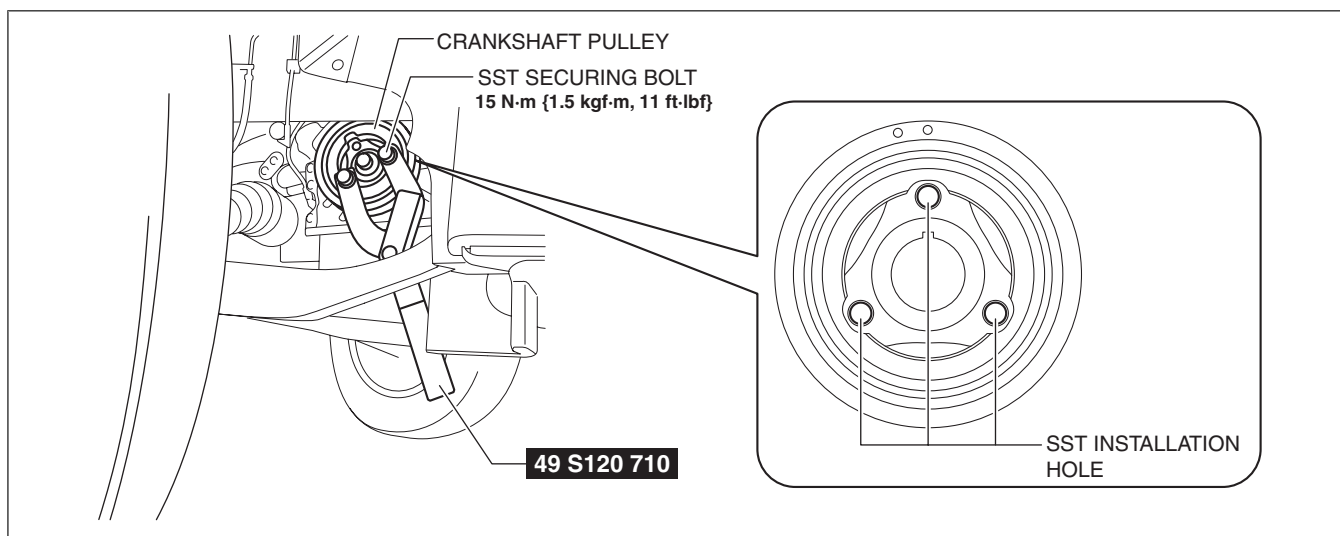
M12 x 1.75 strength classification of 8.8 or more, length 48—50 mm {1.89—1.96 in} (length can be adjusted by adding washer)

#### SST securing bolt tightening torque

15 N·m {1.5 kgf·m, 11 ft·lbf}

#### Caution

- To prevent damage to the crankshaft pulley and engine front cover, always use a bolt and tightening torque of the specification above to install the SSTs to the crankshaft pulley.
- After installing the SSTs, verify that the SST securing bolts do not contact the engine front cover.



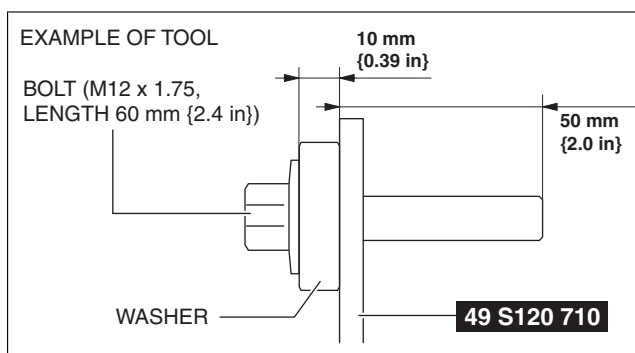
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### Note

- If a bolt with a length of **50 mm {2.0 in}** or more is used, add the appropriate washer and adjust the length to **48—50 mm {1.89—1.96 in}** to use.

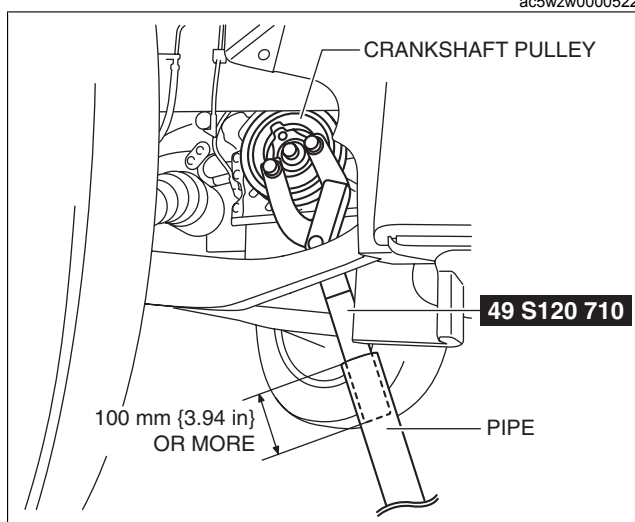
### Example of use

- Using the bolt (**M12 x 1.75 length 60 mm {2.4 in}**) supplied with the **SST 49 S011 102A** (crankshaft lock tool): Add a washer with a **10 mm {0.39 in}** thickness and adjust the length of the **SST** securing bolt to **50 mm {2.0 in}**.



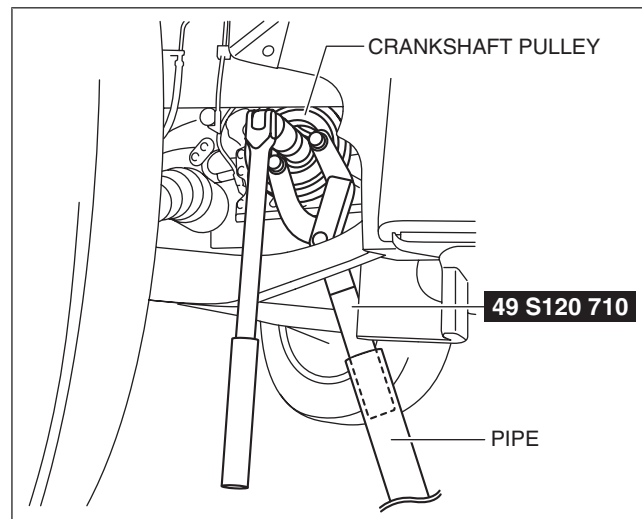
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- One person connects an extension pipe of a suitable length with **100 mm {3.94 in}** or more to the **SST** to prevent the crankshaft pulley from rotating.



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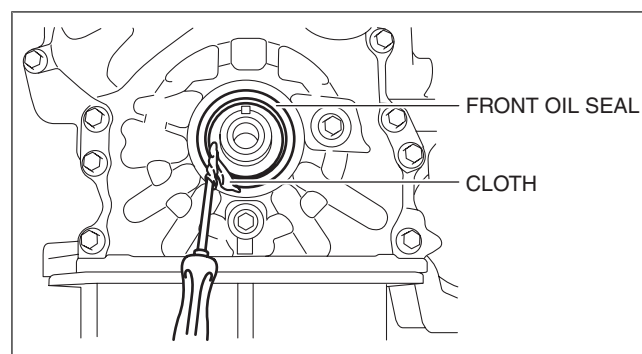
3. Another person loosens the crankshaft pulley lock bolt and removes it.
4. Remove the **SST**.



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#### Front Oil Seal Removal Note

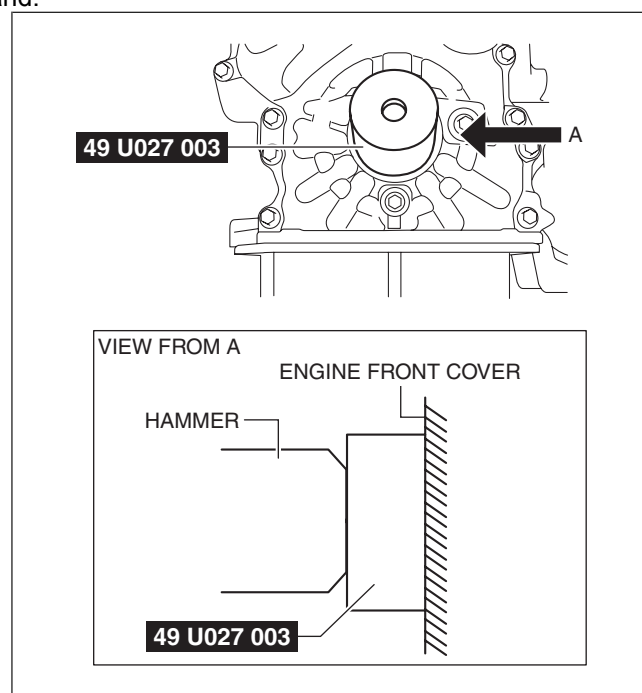
1. Cut the oil seal lip using a utility knife.
2. Remove the oil seal using a flathead screwdriver with the tip protected by a clean cloth to prevent damage to the oil seal sliding part of the crankshaft.



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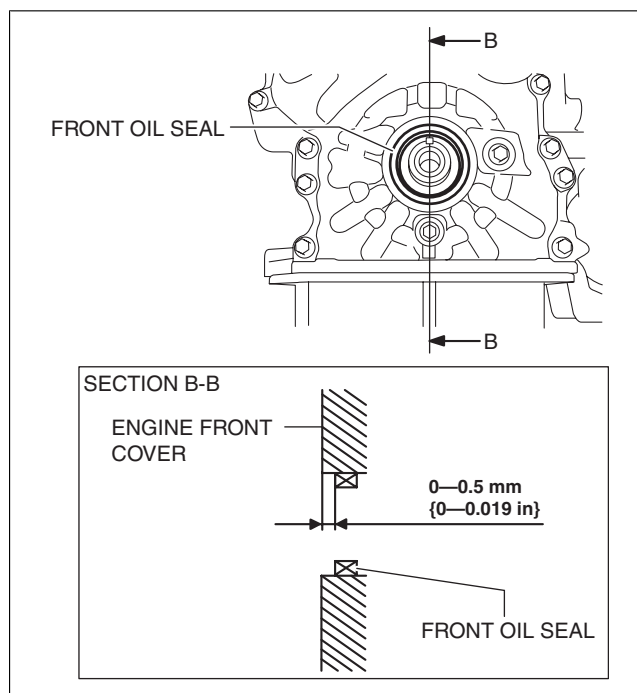
#### Front Oil Seal Installation Note

1. Apply clean engine oil to the inner surface of a new front oil seal.
2. Insert the front oil seal into the engine front cover by hand.
3. Tap the oil seal in evenly using the **SST** and a hammer.



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**Front oil seal press on amount**  
**0—0.5 mm {0—0.019 in}**



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### Crankshaft Pulley Lock Bolt Installation Note

#### Note

- Tighten the crankshaft pulley lock bolt in two steps. Perform the second step for tightening to a specified angle using two people.

1. Install the crankshaft pulley.
2. Install the **SST** to the crankshaft pulley using the bolts of the following specification.

#### SST securing bolt specification

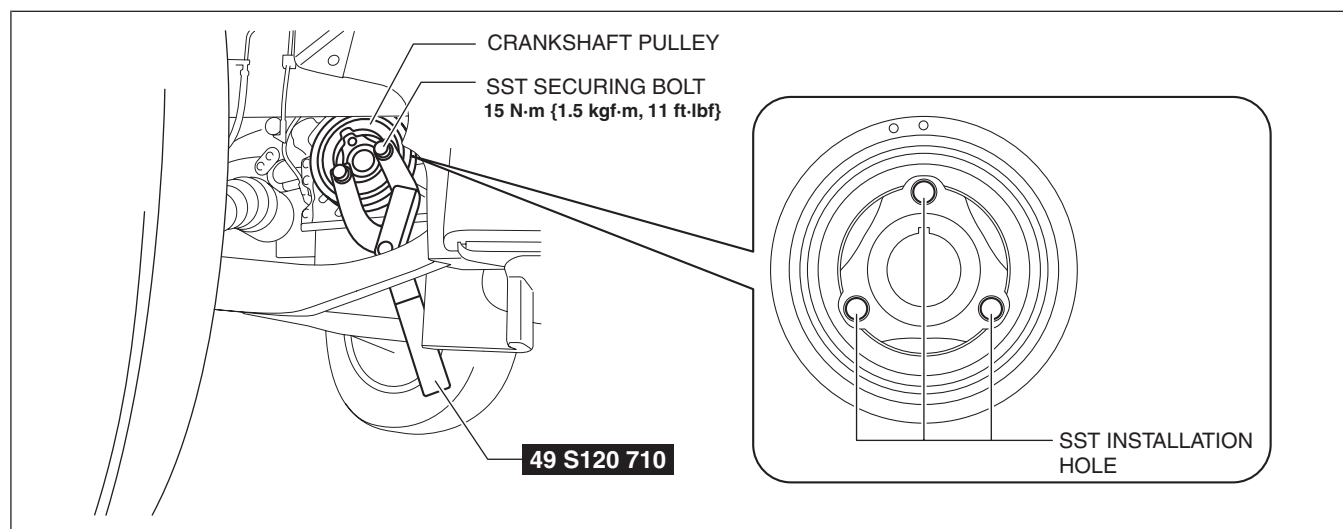
**M12 x 1.75 strength classification of 8.8 or more, length 48—50 mm {1.89—1.96 in} (length can be adjusted by adding washer)**

#### SST securing bolt tightening torque

**15 N·m {1.5 kgf·m, 11 ft·lbf}**

#### Caution

- To prevent damage to the crankshaft pulley and engine front cover, always use a bolt and tightening torque of the specification above to install the SSTs to the crankshaft pulley.
- After installing the SSTs, verify that the SST securing bolts do not contact the engine front cover.



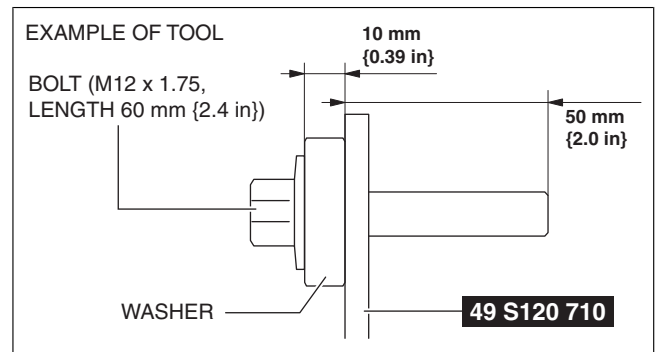
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#### Note

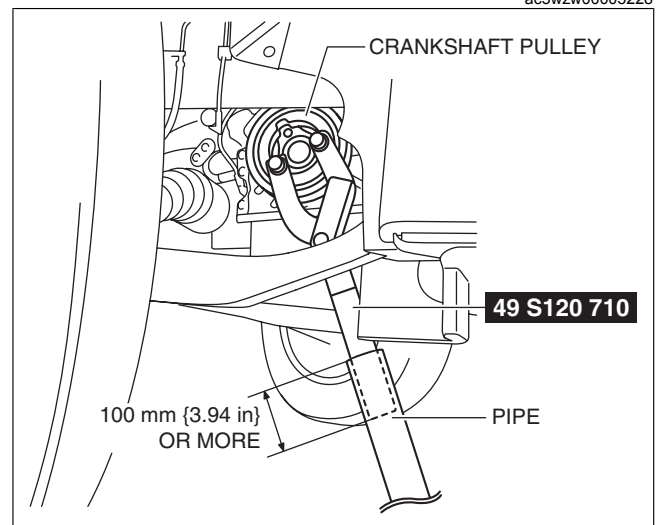
- If a bolt with a length of **50 mm {2.0 in}** or more is used, add the appropriate washer and adjust the length to **48—50 mm {1.89—1.96 in}** to use.

#### Example of use

- Using the bolt (**M12 x 1.75 length 60 mm {2.4 in}**) supplied with the **SST 49 S011 102A** (crankshaft lock tool): Add a washer with a **10 mm {0.39 in}** thickness and adjust the length of the **SST** securing bolt to **50 mm {2.0 in}**.



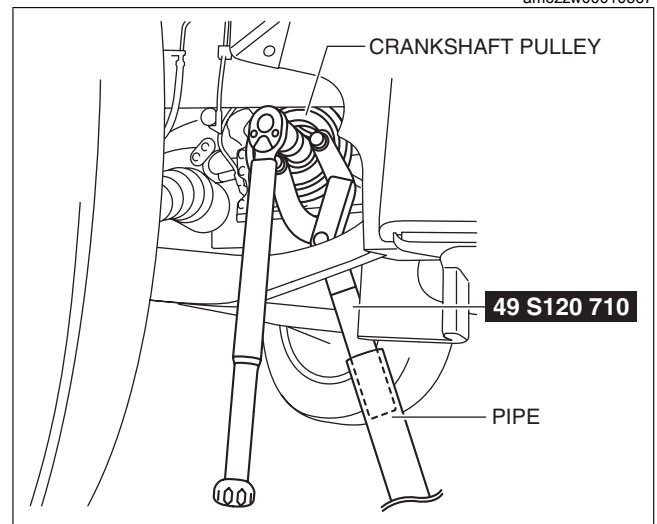
3. Connect an extension pipe of a suitable length of **100 mm {3.94 in}** or more to the **SST** to prevent the crankshaft pulley from rotating.



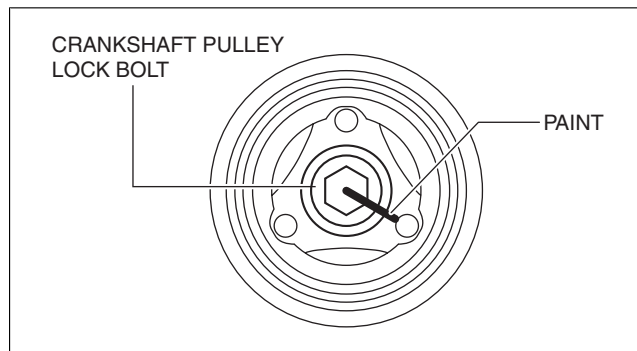
4. Tighten the crankshaft pulley lock bolt.

#### Tightening torque

**First step: 100—120 N·m {11—12 kgf·m, 74—88 ft·lbf}**

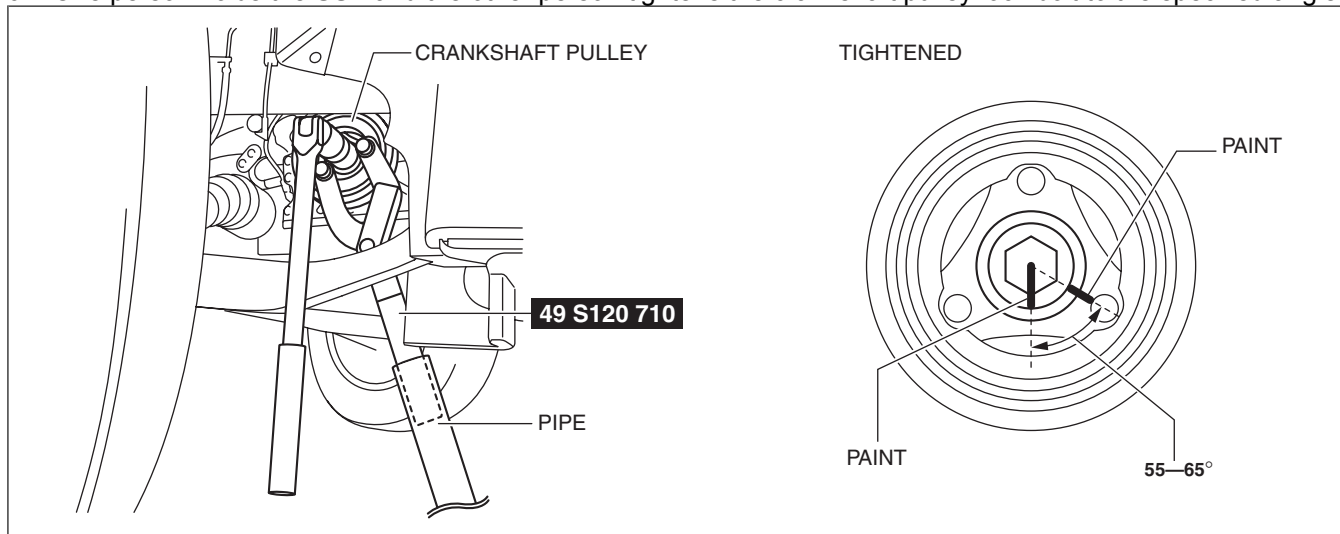


5. Place a paint mark on the crankshaft pulley lock bolt and crankshaft pulley as shown in the figure to tighten the bolt to the specified angle correctly.



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6. One person holds the **SST** and the other person tightens the crankshaft pulley lock bolt to the specified angle.



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**Tightening torque**  
**Second step: 55—65°**

7. Remove the **SST**.