TPM – JISHU HOZEN : STEP 1

AUTONOMOUS MAINTENANCE : STEP1

FUGAIS (ABNORMALITIES) – WHAT : WHERE

TPM – JISHU HOZEN : STEP 1

AUTONOMOUS MAINTENANCE : STEP1

WHAT ARE ABNORMALITIES?

- DUST
- DIRT
- LEAK
- RUST
- LOOSE
- DAMAGE
- DEFORMED
- NON STANDARD
- VIBRATION
- NOISE
- MIS ALIGNMENT
- SHAKING
- WORN OUT
- MISSING PARTS

WHERE TO FIND ABNORMALITIES?

- BOLTS AND NUTS
- LUBRICATION
- TRANSMISSION
- HYDRAULICS
- PNEUMATICS – GAS SYSTEM
- ELECTRICAL
- SAFETY

BOLTS & NUTS

BOLTS & NUTS- *Fugais to look out for*
(Typical but not exhaustive ..)

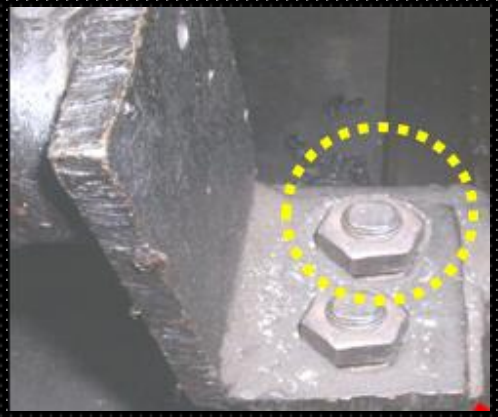
- **More(Max ?)No. of Treads**
- **Nut Missing in the bolt**
- **Non Standard Bolts**
- **Screw Missing**
- **Bolt Bend**
- **Non Uniform washer**
- **Rust in the Bolt ……..**

BOLTS & NUTS- *Fugais to look out for*

- **More(Max ?)No. of Treads**

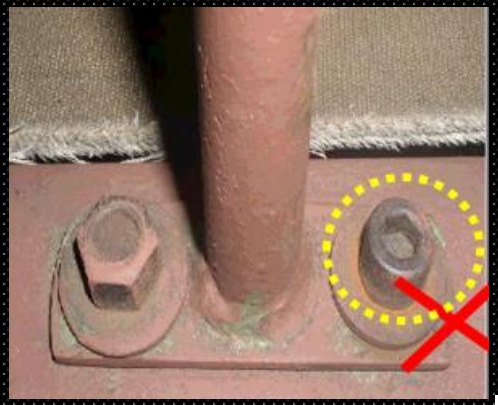
BOLTS & NUTS- *Fugais to look out for*

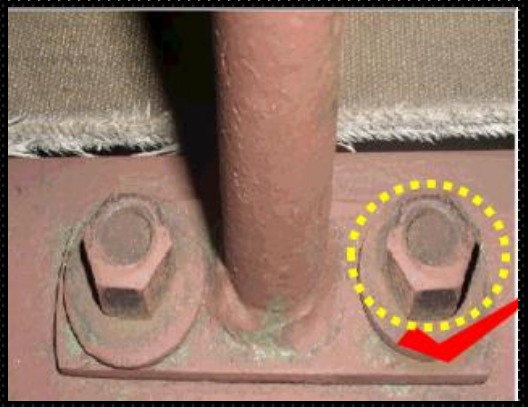
- **Nut Missing in the bolt**



BOLTS & NUTS- *Fugais to look out for*

- **Non Standard Bolts**





BOLTS & NUTS- *Fugais to look out for*

❑Screw Missing

BOLTS & NUTS- *Fugais to look out for*

- **Bolt Bend**

BOLTS & NUTS- *Fugais to look out for*

- **Non Uniform Washer**

BOLTS & NUTS- *Fugais to look out for*

- **Rust (Corrosion) in the Bolt**

Rust in the Bolt

LUBRICATION SYSTEM

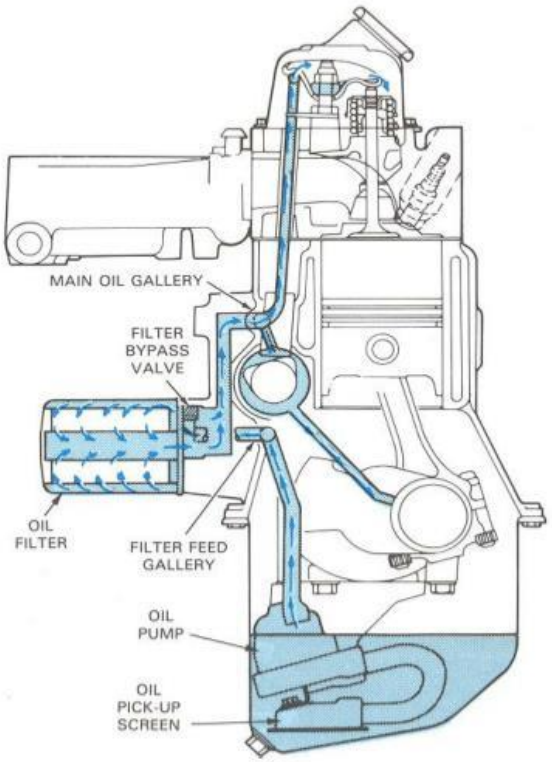
- **LUBRICATION SYSTEM :** *Fugais to look out for (Typical but not exhaustive)*

- ❑ **Lubrication System Not Working**
- ❑ **No Grease in Reservoir**
- ❑ **No Visibility**
- ❑ **No Oil in the Gear Box**
- ❑ **Lubrication Level Low /High**
- ❑ **Grease / oil - Leak**
- ❑ **Without Grease Nipple & Cap**
- ❑ **Reservoir Tank Open**
- ❑ **Excess Greasing**
- ❑ **Oil / Grease Dust Contamination**

❑Lubrication System NOT Working

Lubricating System Parts

- Oil pan
- Oil pump
- Pick-up screen
- Pressure regulator
- Oil filter
- By-pass valve
- Oil galleries
- Dipstick
- Pressure indicator

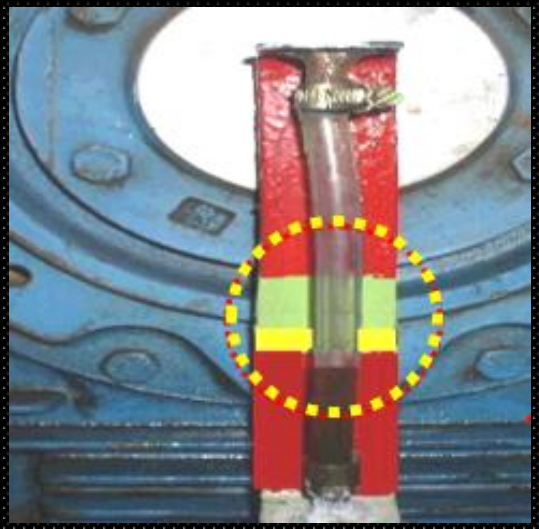


❑No Grease in Reservoir

❑No Visibility

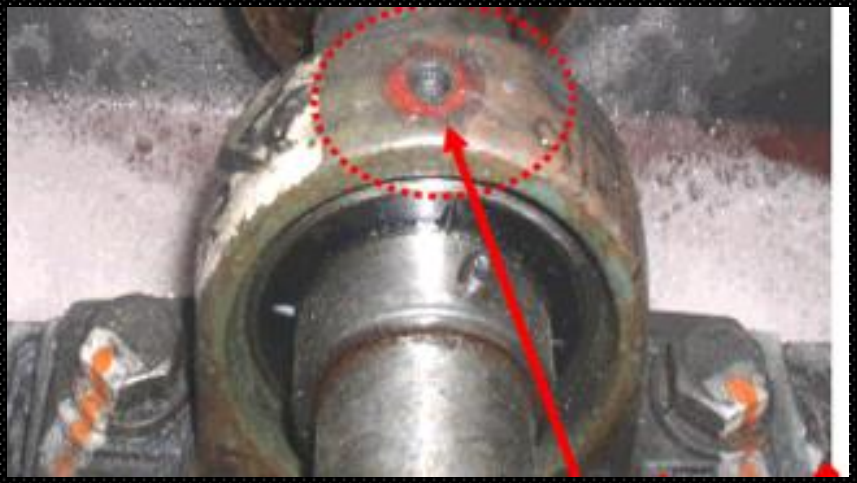
❑No Oil in the Gear Box

❑Lubrication Level Low /High



❑Grease / Oil - Leak

❑Without Grease Nipple & Cap



❑Reservoir Tank Open

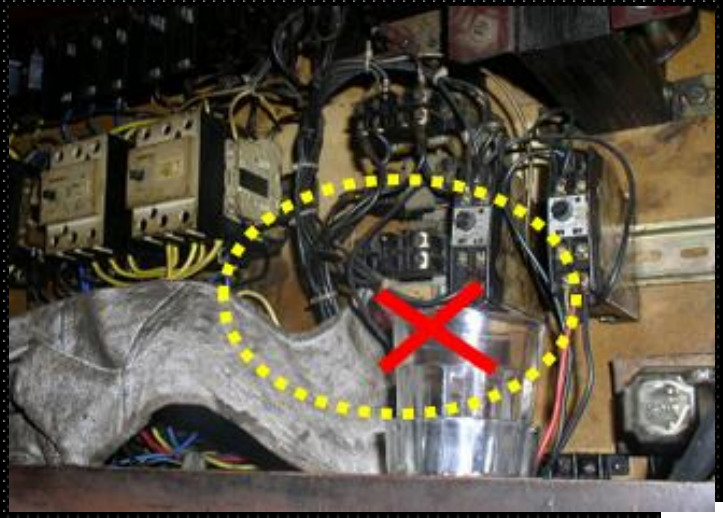
ELECTRICITY

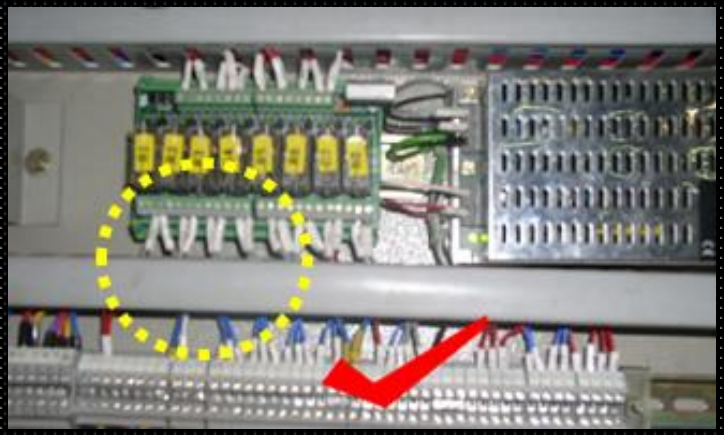
ELECTRICAL SYSTEM : *Fugais to look out for (Typical but not exhaustive)*

- Cooling Fan for Motor
- Unwanted Things Inside Panel
- Wires on Floor
- Panel in Open Condition
- Unwanted holes on the Panel
- No proper Earthing
- Loose & Excess Wires
- Improper Laid Wiring
- Abnormal sound from Motor
- No Proper Gland
- Limit Switch not fixed properly

No Cooling Fan for Motor

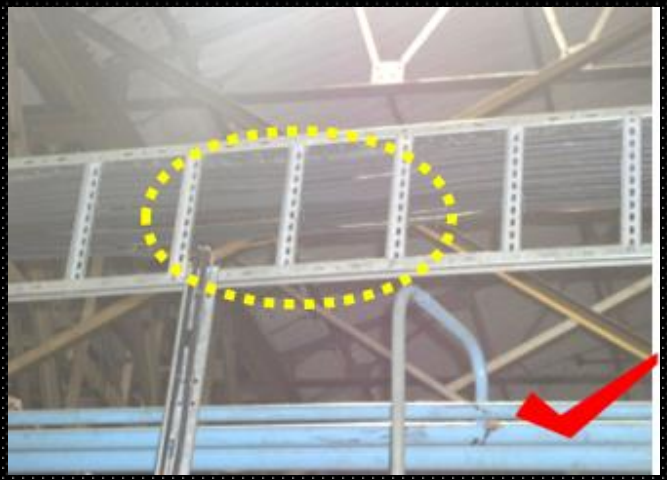
Unwanted Things Inside Panel





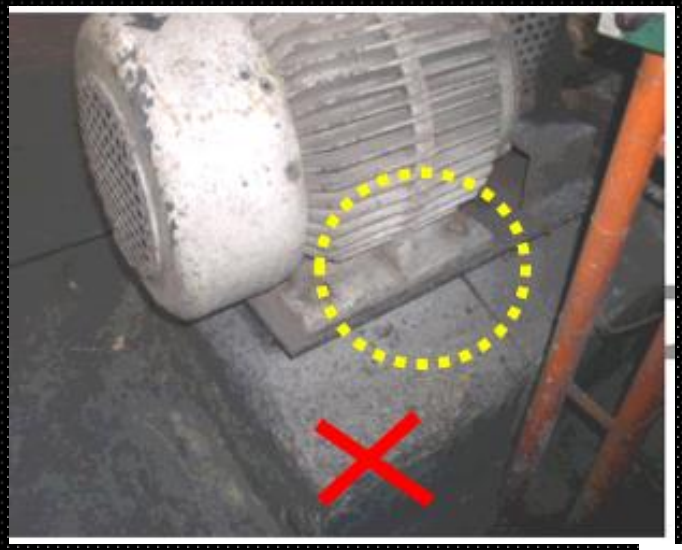
Panel in Open Condition

❑Wires on Floor

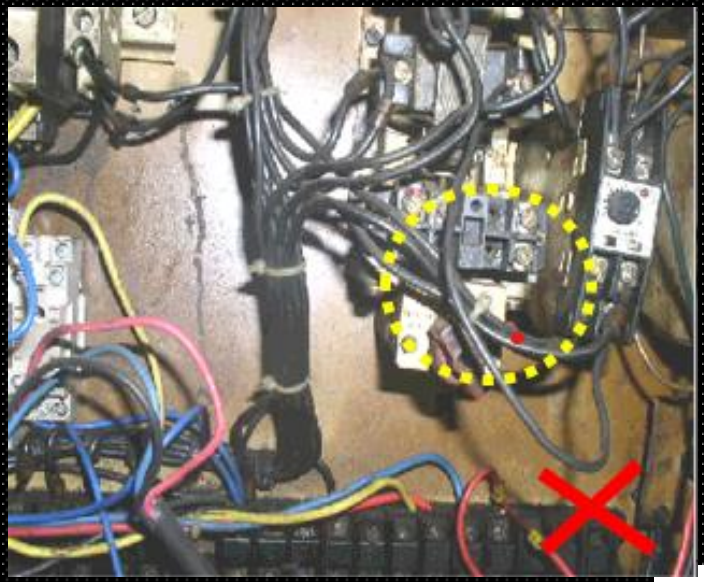


Unwanted holes on the Panel

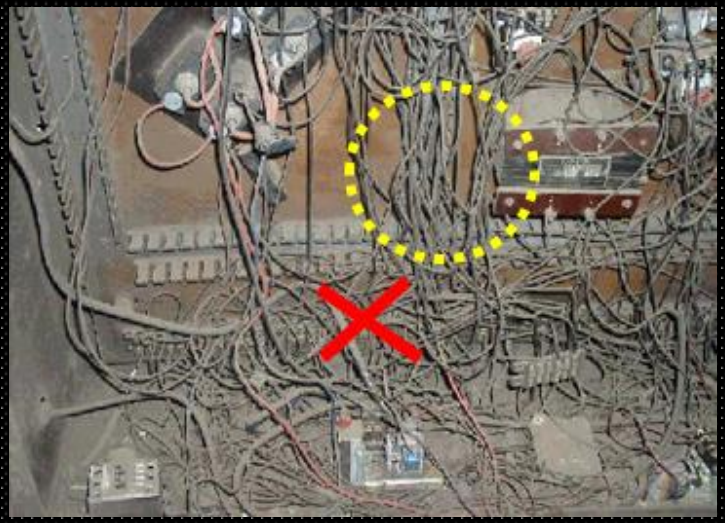
No Proper Earthing



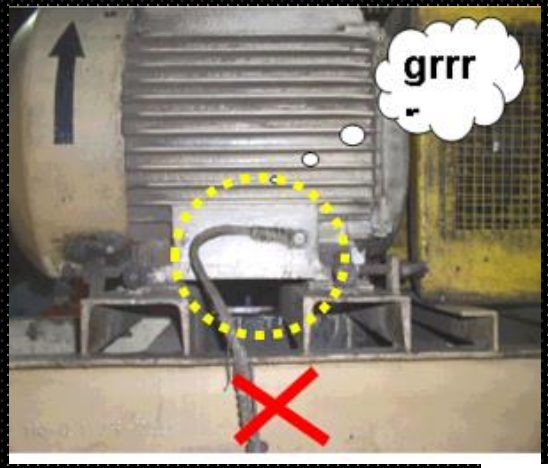
❑Loose & Excess Wires

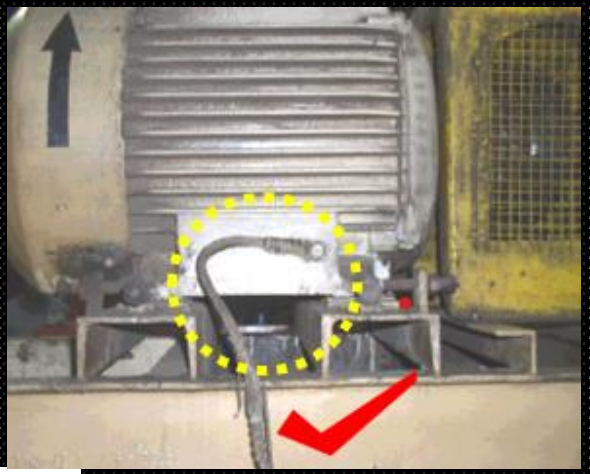


Loose & Excess Wires

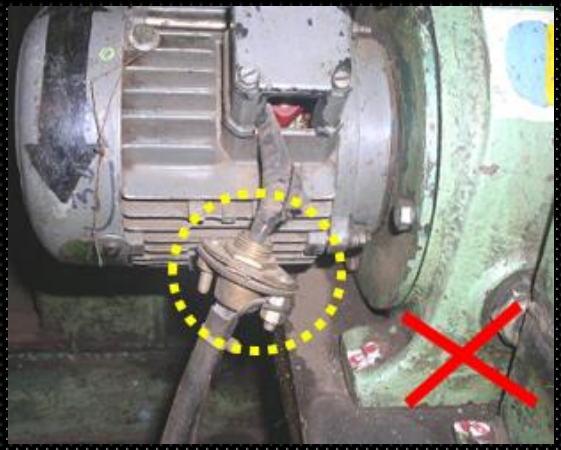


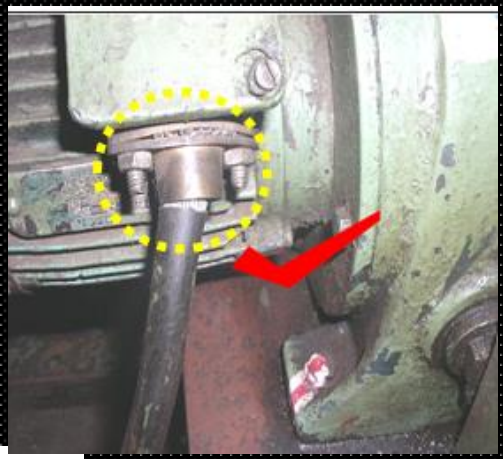
Abnormal Sound from Motor



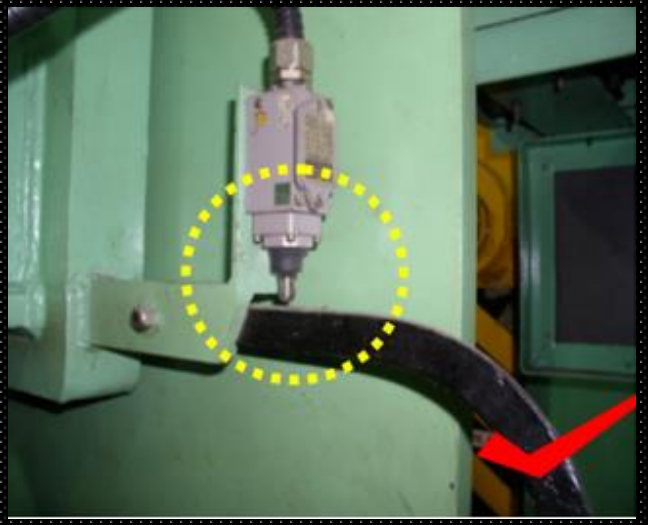


No Proper Gland





- **Limit Switch not fixed properly**



PNEUMATICS

Type Of Abnormality

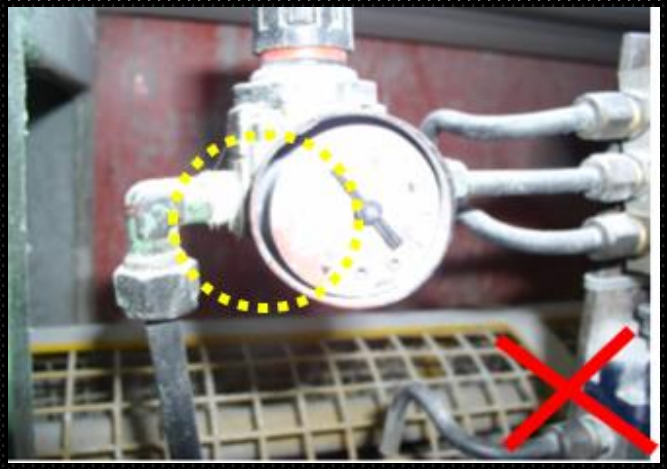
Pneumatic:

- FRL – No Visibility in Bowl
- FRL – Not Fitted Properly
- Pressure Gauge - Damage
- Pressure Gauge – No Needle
- Pressure Gauge – without Glass
- FRL – Not Routed Properly
- Dirt in the Filter Bowl
- Water Contamination in Filter
- No oil in Lubricator
- Oil in Lubricator contaminated
- Air Leak /Gas Leek
- Filter Placed Horizontal

No Visibility in Bowl

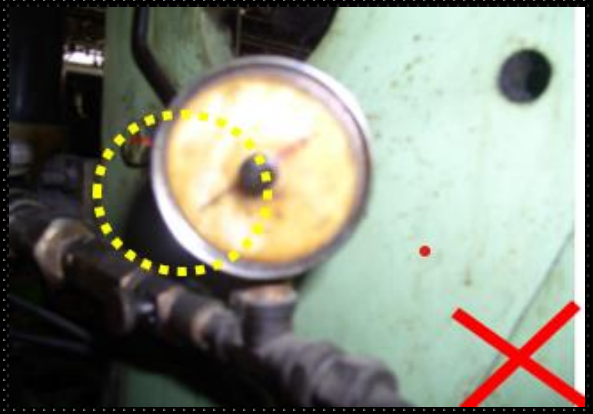
FRL – Not Fitted Properly

Pressure Gauge - Damage



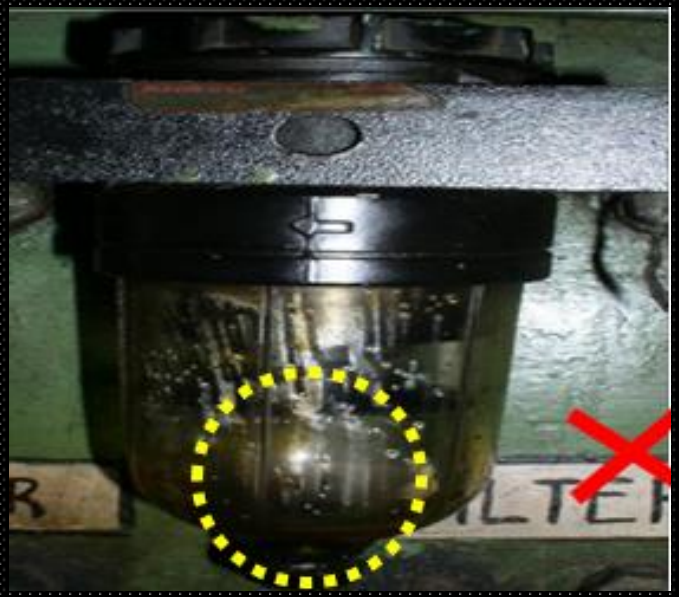
❑ Pressure Gauge – No Needle

Pressure Gauge – without Glass



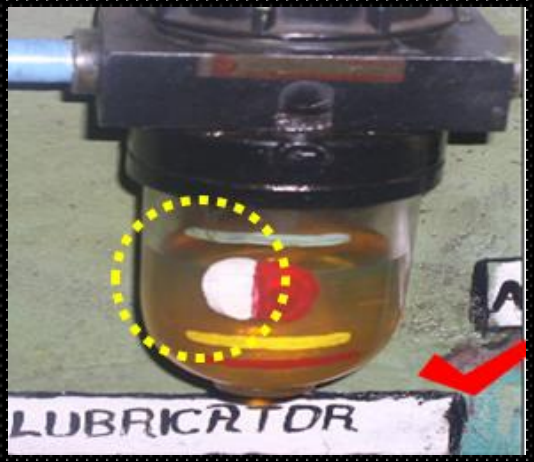
FRL – Not Routed Properly

Dirt in the Filter Bowl

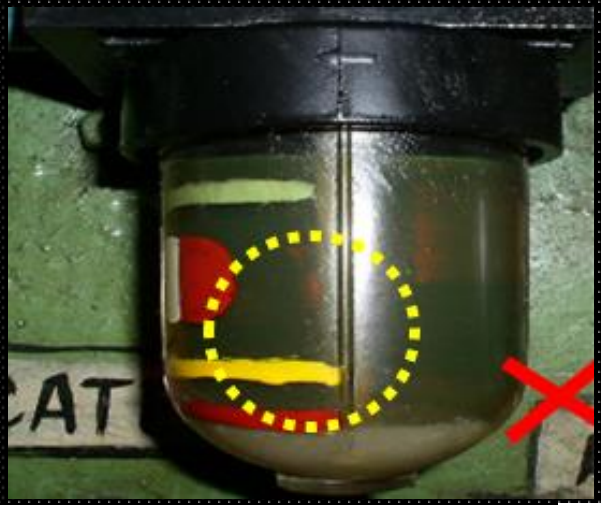


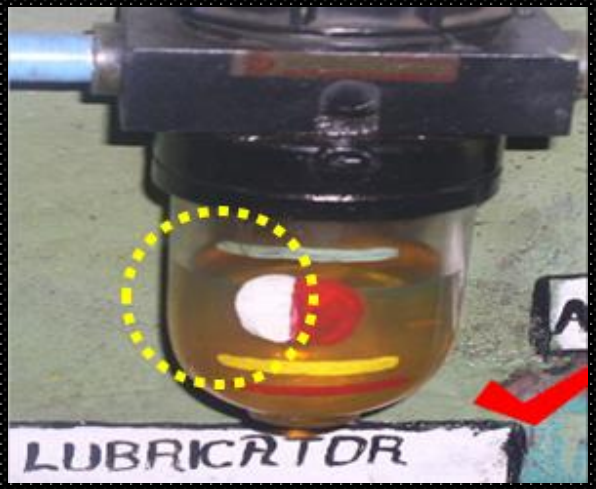
Water Contamination in Filter

No oil in Lubricator



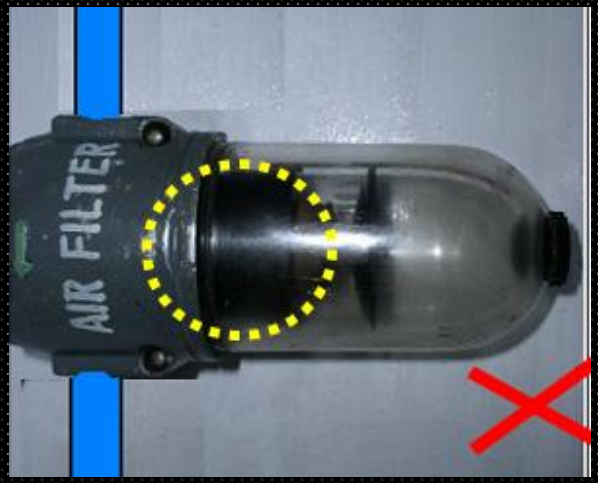
Oil in Lubricator contaminated



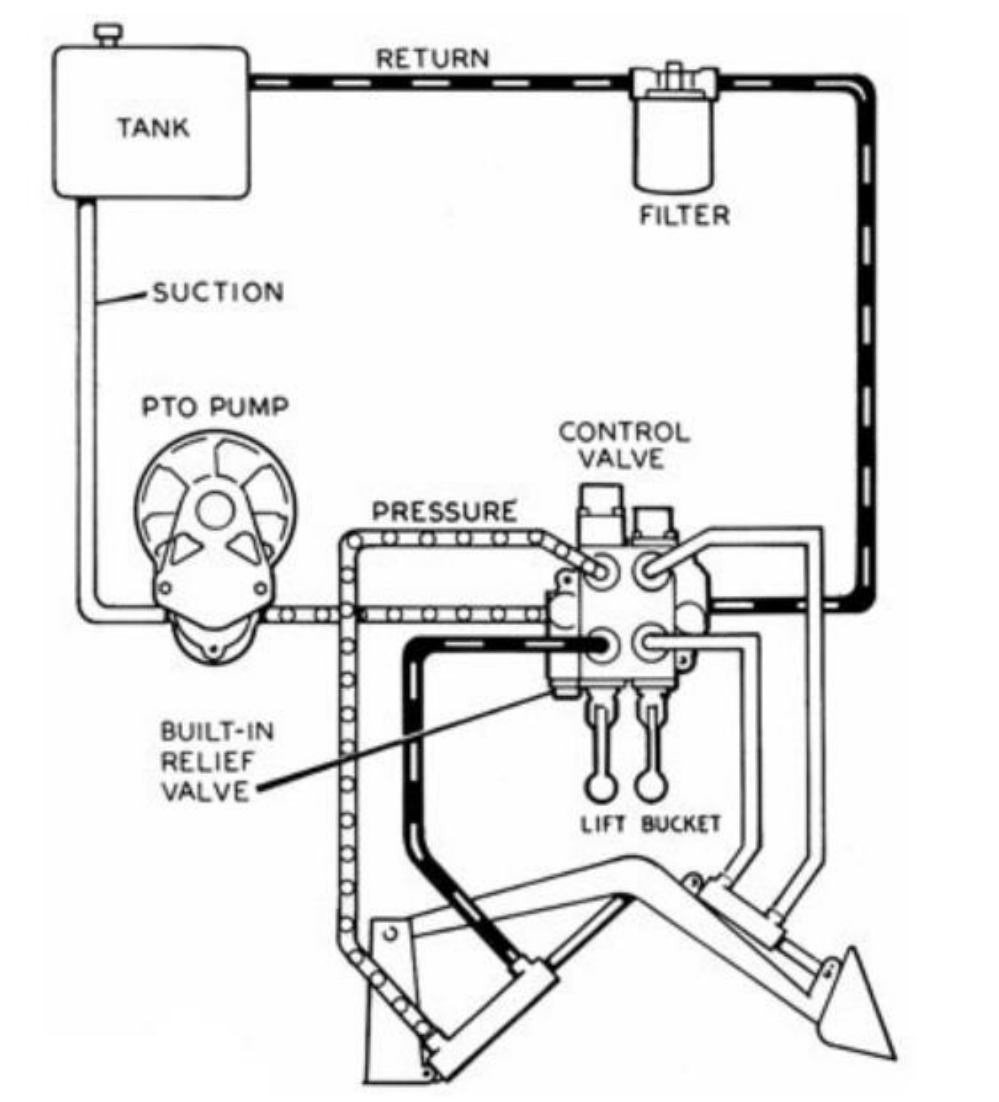


❑ Air Leak /Gas Leek

Filter Placed Horizontal



HYDRAULIC

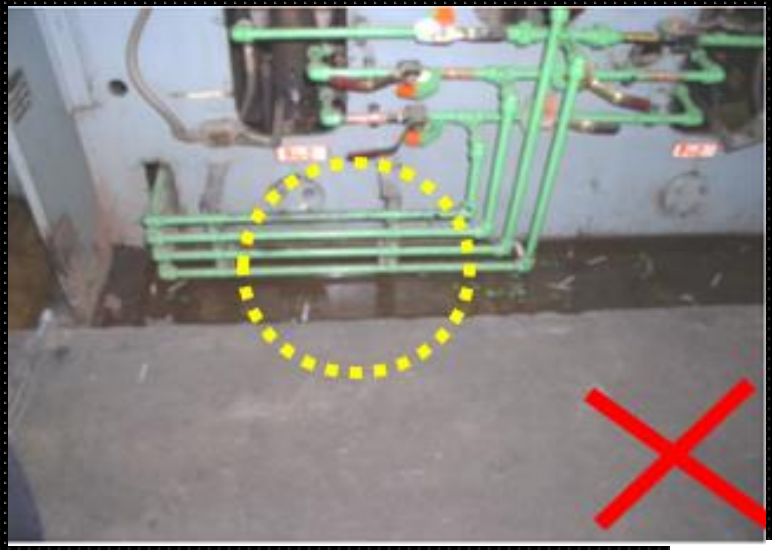

RETURN
TANK
FILTER
SUCTION
PTO PUMP
CONTROL
VALVE
PRESSURE
BUILT-IN
RELIEF
VALVE
LIFT BUCKET

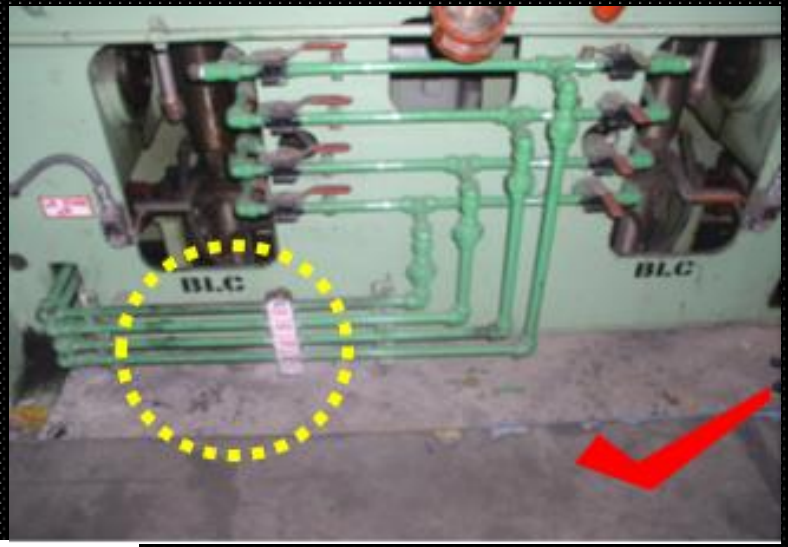
Type Of Abnormality

- **Hydraulics:**

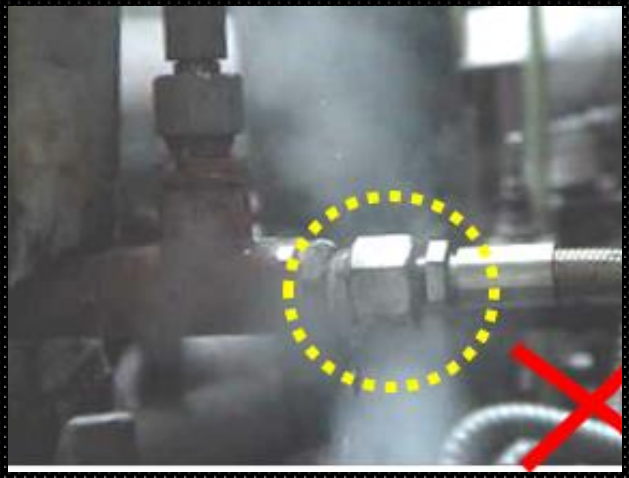
- Water/Oil Leak – Pipe Line Damage
- Steam Leak in Hose
- Steam Leak in Flange
- Abnormal sound in Hydraulic Line
- Pressure Gauge – Damage , No Needle ,No Glass
- Lines Not Routed Properly

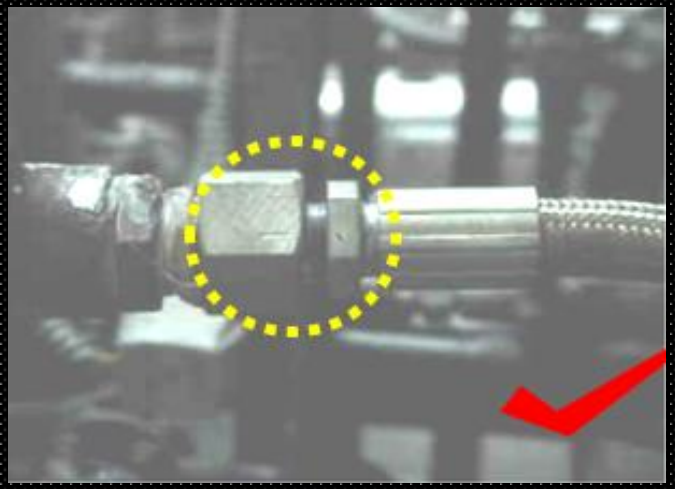
Water/Oil Leak – Pipe Line Damage



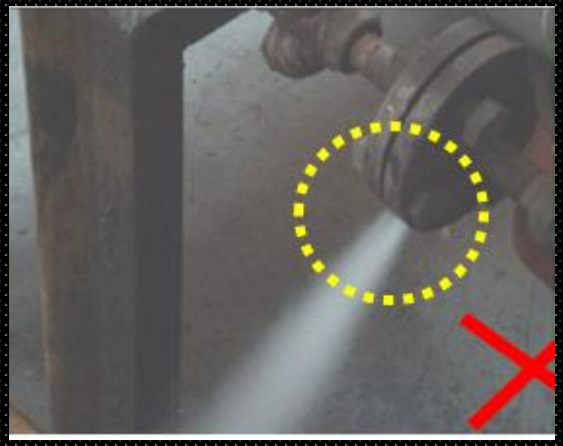


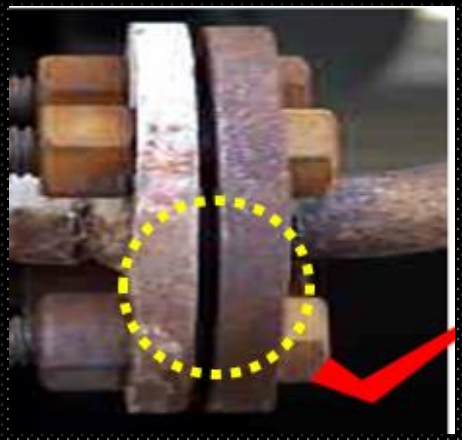
Steam Leak in Hose



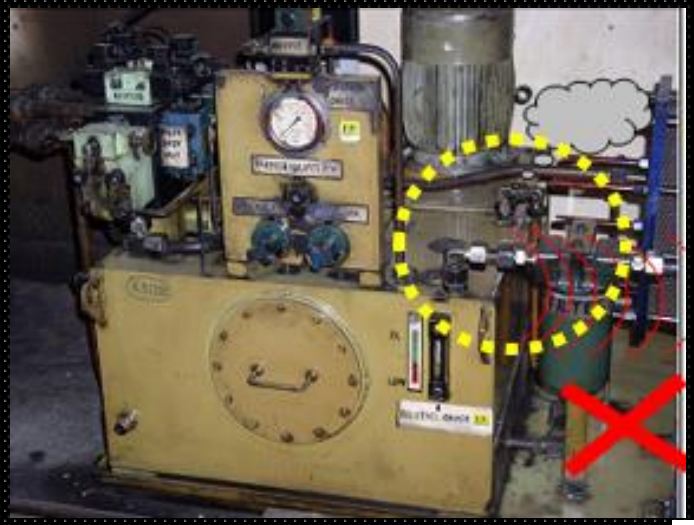


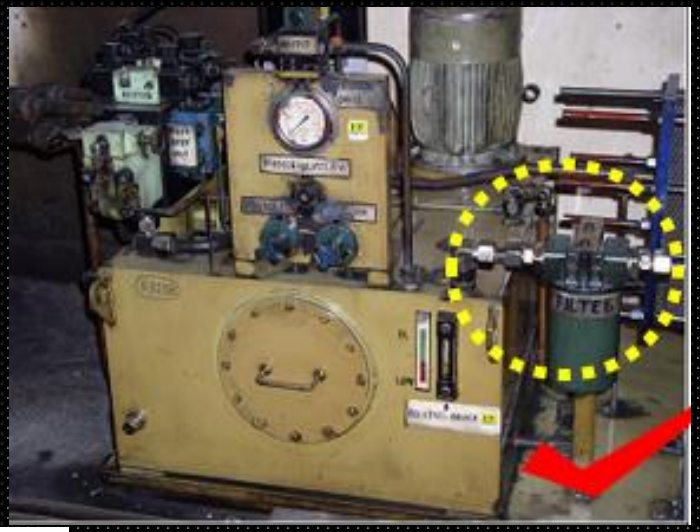
Steam Leak in Flange



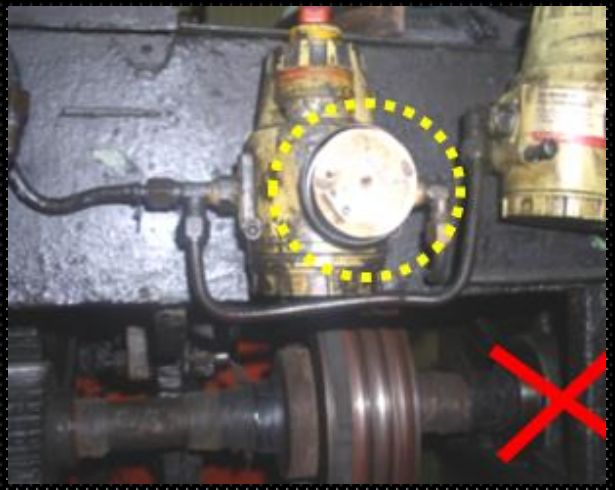


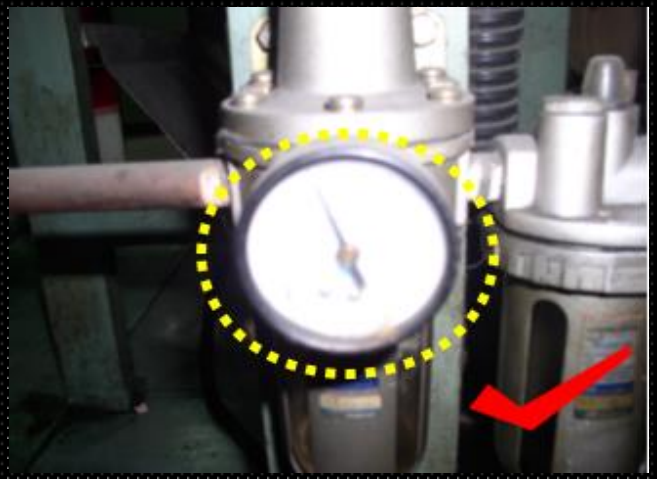
Abnormal Sound in Hydraulic Line



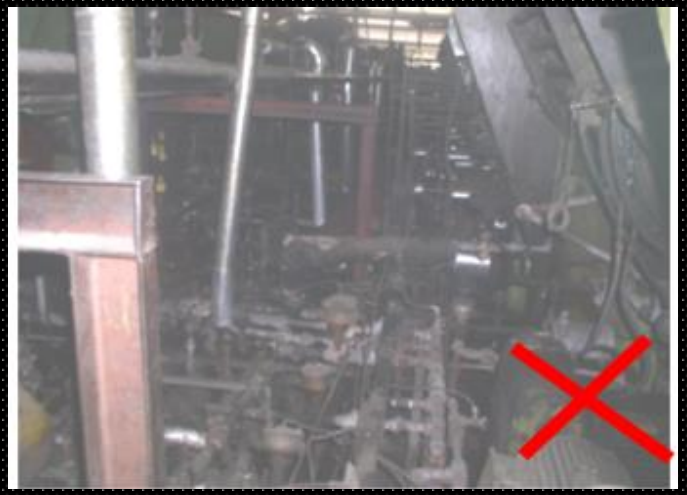


Pressure Gauge – Damage , No Needle ,No Glass

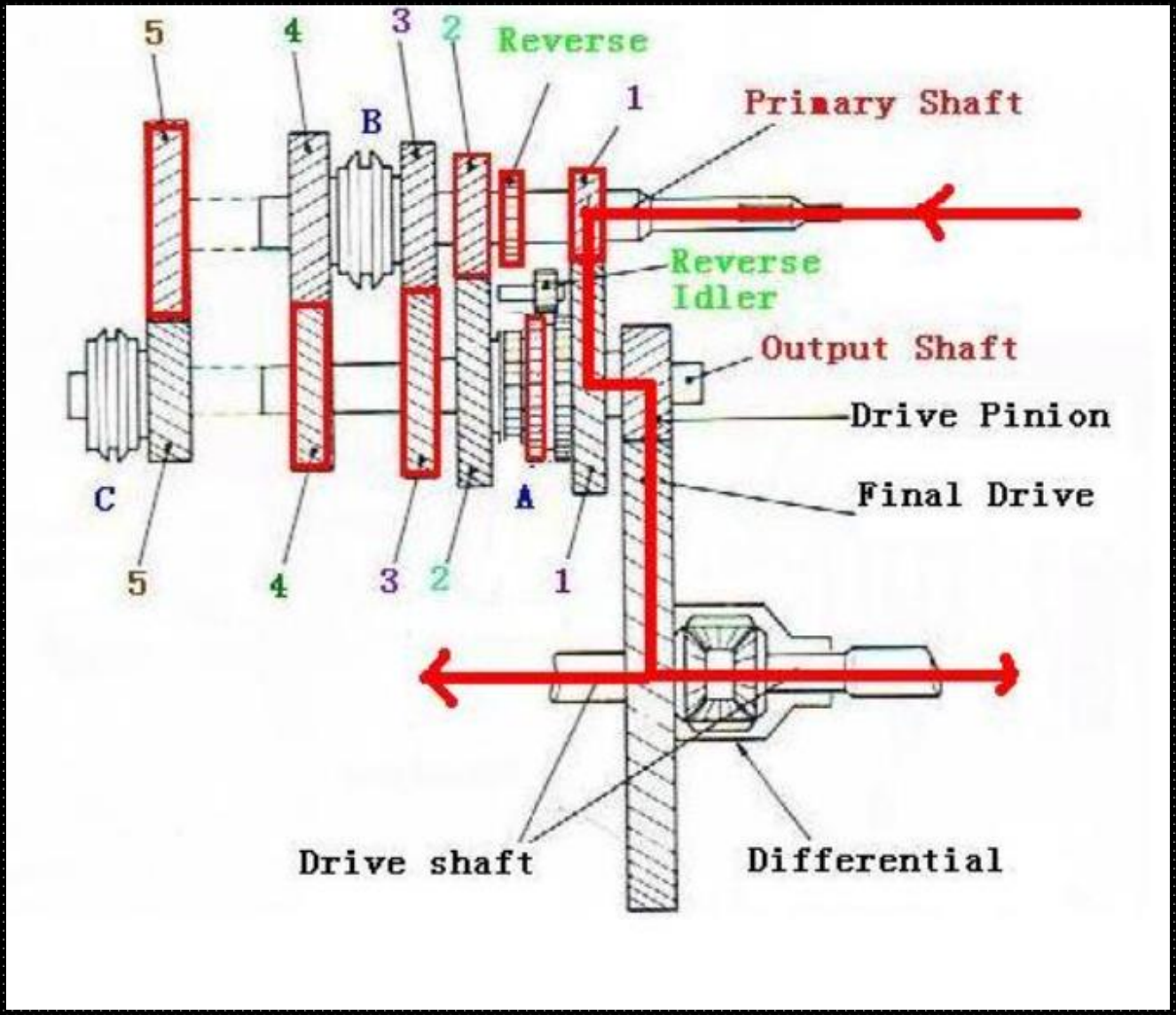




Lines Not Routed Properly



TRANSMISSION

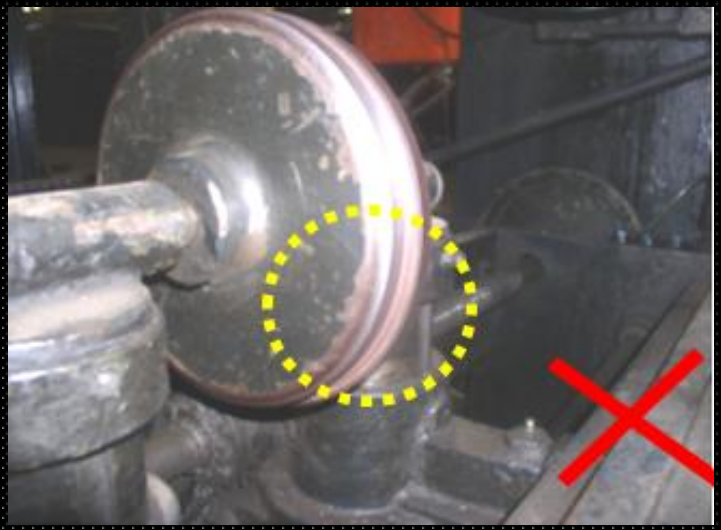


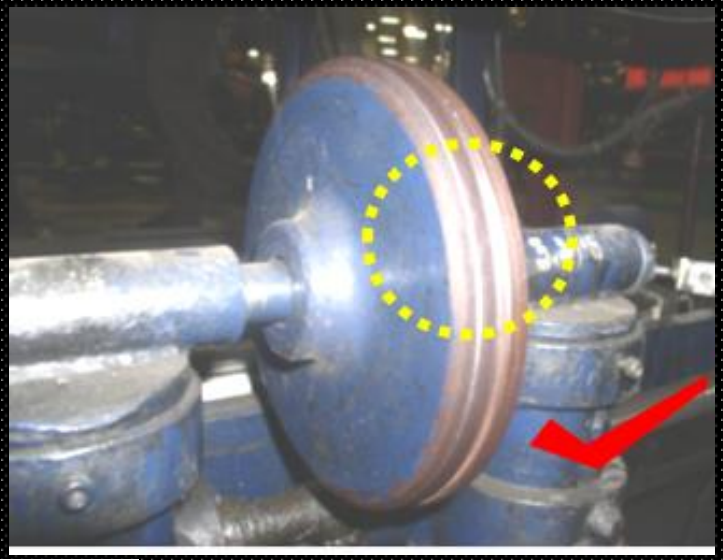
Type Of Abnormality

- **Drive Unit (TRANSMISSION)**

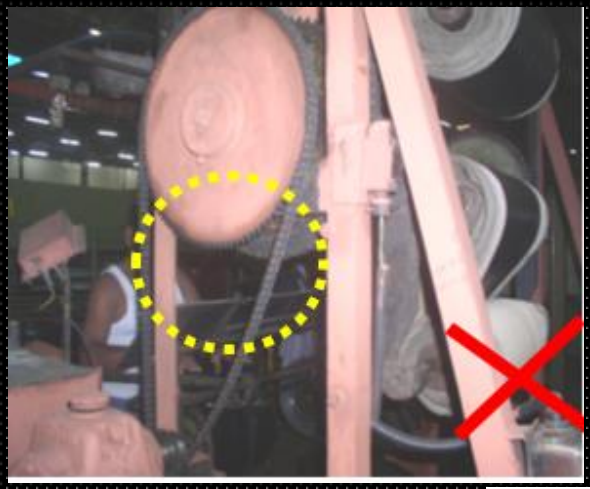
- Mis Alignment
- Without Safety Guard
- Shaft damage / Worn Out
- Belt - Missing / Loose / Tight
- Chain - Loose / Tight
- Crack in Pulley
- Pulley / Sprocket – Key,Keyway Damage
- Pulley / Sprocket – Damage

Mis Alignment

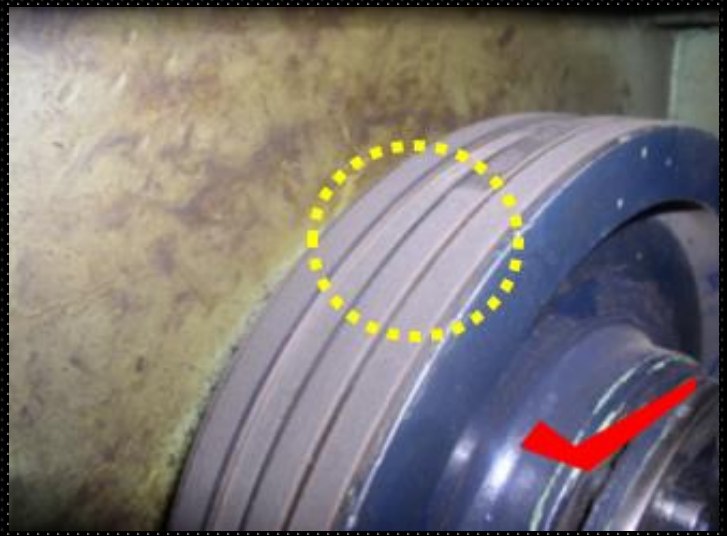


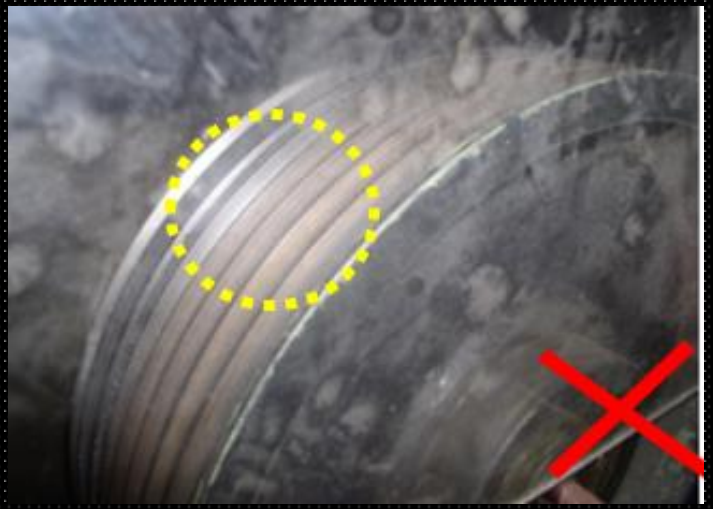


Without Safety Guard



Belt - Missing / Loose / Tight

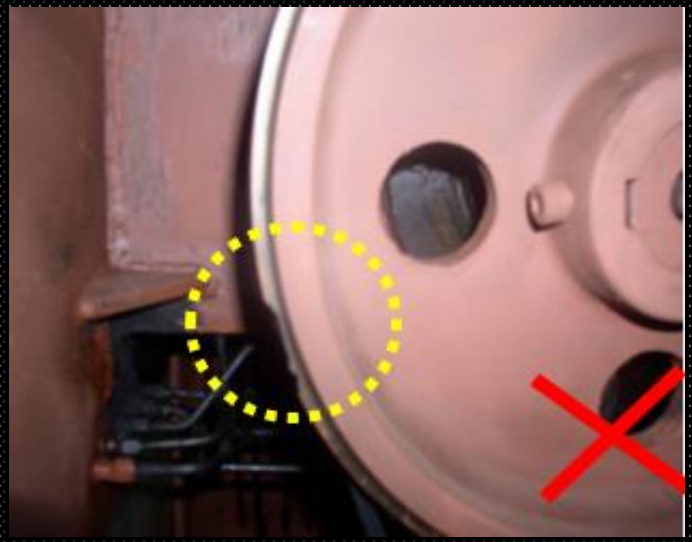


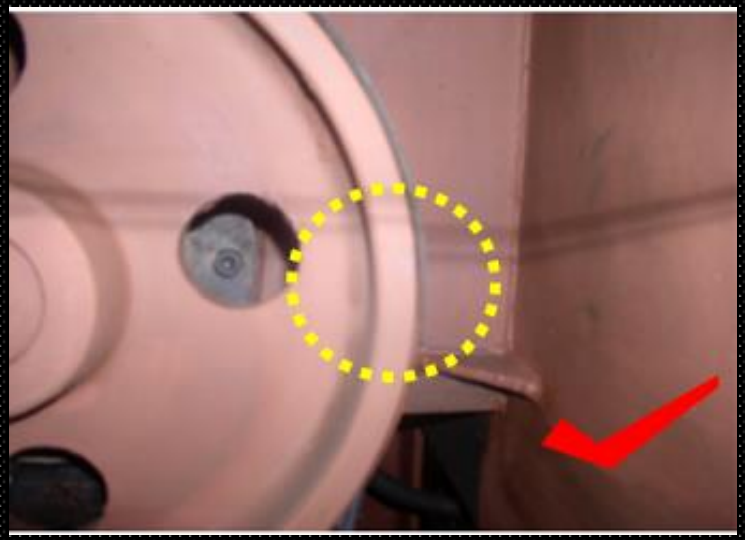


Chain - Loose / Tight

❑ Crack in Pulley

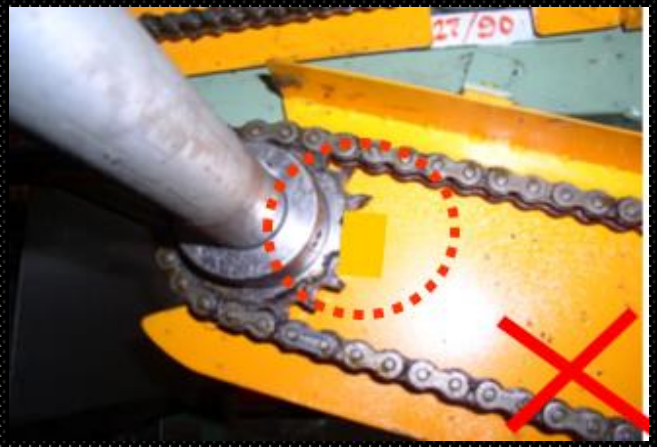
Pulley / Sprocket – Key,Keyway Damage





Pulley / Sprocket – Key,Keyway Damage

Pulley / Sprocket – Damage



Safety :

- Safety Bar / Rope not working
- Without Splash Guard
- No Emergency Switch
- No proper Gland in the Wire
- Improper Laying of Cables
- Working While Press Closing
- Standing in front of press while opening
- Standing in the Mould

ONE POINT LESSON

DEPARTMENT	
THEME	

CRACK IN THE PULLEY

TPM	
OPL No	
Date of prep	

CLASSIFICATION	Basic Knowledge	Improvement Cases	Trouble Cases	Manager	Supervisor	Cell	Prepared
	✓						

WHAT IS ABNORMAL ?

CRACK IN THE PULLEY

WHAT IS NORMAL ?

NO CRACK IN THE PULLEY

WHAT TO CHECK	WHAT WILL HAPPEN IF ABNORMAL	CAUSES OF ABNORMALTY	CORRECTIVE ACTION
NO CRACK IN THE PULLEY	BREAKDOWN	DAMAGE WHILE HANDLING	TO BE REPLACED WITH GOOD PULLEY