CURED TYRE DEFECT DIRECTORY

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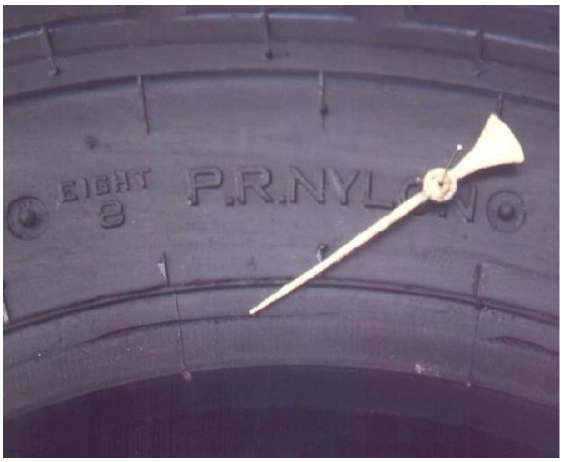
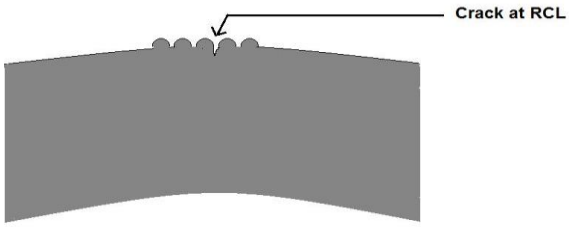
VI ABBREVIATIONS

1	RCL	RING CENTER LINE
2	LSW	LIGHT SIDEWALL
3	OTS	OPEN TREAD SPLICE
4	HP	HIGH PRESSURE
5	HW	HOT WATER
6	FM	FOREIGN MATERIAL
7	PCI	POST CURE INFLATION

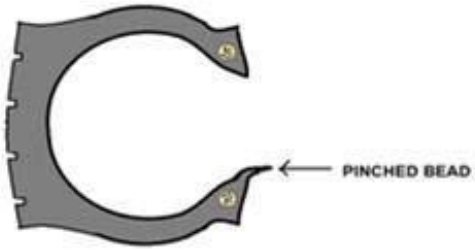
1. CRACK AT RCL





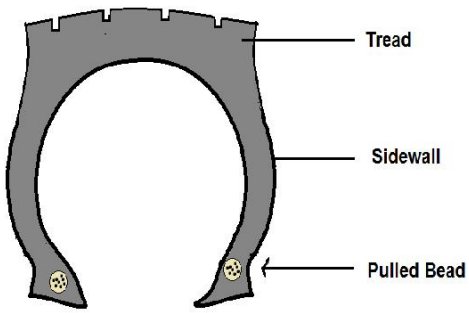
POSSIBLE CAUSES	ACTION
Ply width off	Check the ply widths
	Set the ply widths as per spec at bias cuter
	Excess width plies to be cut to specified width at building
Ply angle high	Check the ply angle and consult Techf If it is high
Wrong bead filler	Ensure correct usage of bead filler
Tread ends thick	Make the tread edges thin in consultation with Tech
FM in tread ends	Clean the foreign maters embedded in tread ending
Drum set high	Check the drum set and set it right
Wrinkled turn ups	Caution the tyre builder
Wrinkled treads at edges	Check the working and travelling of back / bottom sttcher
	Check the tread width, higher width tread will lead to wrinkling ot treads hence do not use
Of cantered tread	Check tread centering pointer and set it right
Curing ring block vents	Get them cleaned by pin venting
Dirty curing rings	Get it cleaned
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech

2. PINCHED BEAD



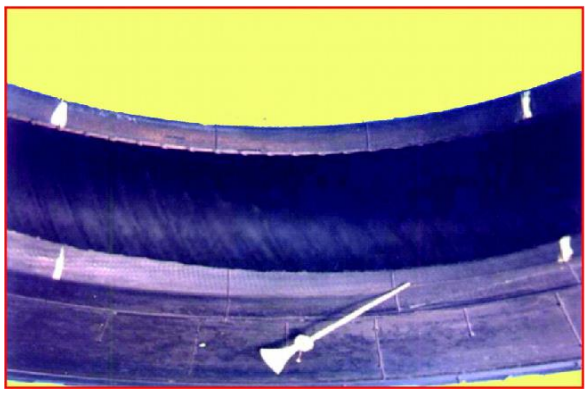
POSSIBLE CAUSES	ACTION
Ply angle high	Check ply angle, if angle is high do not use the fabric
Ply gauge high	Check ply gauges and do not use the fabric with high gauge
Bead perimeter low	Check the beads on BPR if tight reject them
Wrong bead core	Check the beads for number of strands and layers
Drum set high	Check the drum set and set it right
Turn down ply more	Check the ply width and correct it at bias cuter or building
Loose turn ups	Caution the tyre builder
Wrinkled turn downs	Caution the tyre builder
Wrong chafer	Check the correct usage of chafer
Wrong curing ring	Check whether part nof 1 & 5 are correct, if ledge width is less pinched bead defect can come
Wrong moulding	Ensure correct tyre size
Of centre loading	Avoid deformaton, take full care while loading
Bladder lock nut height more, which touches to platen in press close condition	Replace the bladder clamps with lesser height clamp
Deformed green tyre	Avoid deformaton of green tyre, store the green tyres on racks, do not keep the tyre one above the other
Green tyre weight more	Higher weight tyre will lead to pinched bead defect, as excess material at bead will come as pinch
Piston cylinder bend	Check the piston cylinder and replace

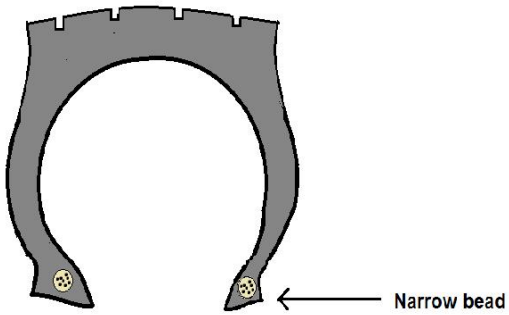
3. PULLED BEAD



POSSIBLE CAUSES	ACTION
Ply angle low	Check ply angle if low do not use the fabric& advice fr Tech
Bead perimeter high	Check the beads on BPR, if loose reject them
Wrong bead core	Check the number of strands and layers
Drum set low	Check the drum set and set it rightf
Turn down ply less	Check the ply widths and set it right at bias cutter
Off cantered bead	Check the concentricity of BPR with drum and set it right
Off cantered ply	Check ply centering guide and set it right
Wrong chafer	Ensure correct usage of chafer
Shaping excess	Adeust shaping pressure as per spec
Wrong moulding	Check the green tyres for proper size and identification
Off centre loading	Care is to be taken while loading for proper centeringf
Deformed green tyre	Avoid deformaton, keep the green tyres on racksf Do not keep the tyre one over the other

4. NARROW BEAD





POSSIBLE CAUSES	ACTION
Ply width less	Check ply width, if less then do not use
Ply angle low	Check ply angle, if low then do not use
Bead perimeter high	Check the beads on BPR, if beads are loose, reject them
Wrong bead core	Check number of strands and layers in a bead
Off cantered bead	Check concentricity of BPR and drum, and correct it
Off cantered ply	Check ply centering guide and set it right
Wrong chafer	Ensure about correct usage of chafer
Wrong curing ring	Ensure specified curing ring usage
Shaping improper	Set the shaping pressure as per specf, if shaping found improper get it rectified
Shaping excess	Set the shaping pressure as per specf or reduce if required
Wrong moulding	Avoid wrong moulding, check for correct size and identification
Off centre loading	Care is to be taken while green tyre loading
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other; keep minimum green tyre inventory

5. BENT BEAD/KINKED BEAD

POSSIBLE CAUSES	ACTION
Ply angle low	Check ply angle, if low then do not use
Bead perimeter low	Check the beads on BPR if tight reject them
Wrong bead core	Check number of strands and plies in a bead
Drum set low	Check the drum set and set it right
Vacuum high	Check the vacuum and set it as per spec
Tyre stuck up to the mould	Check mould lubricant application or bead oil

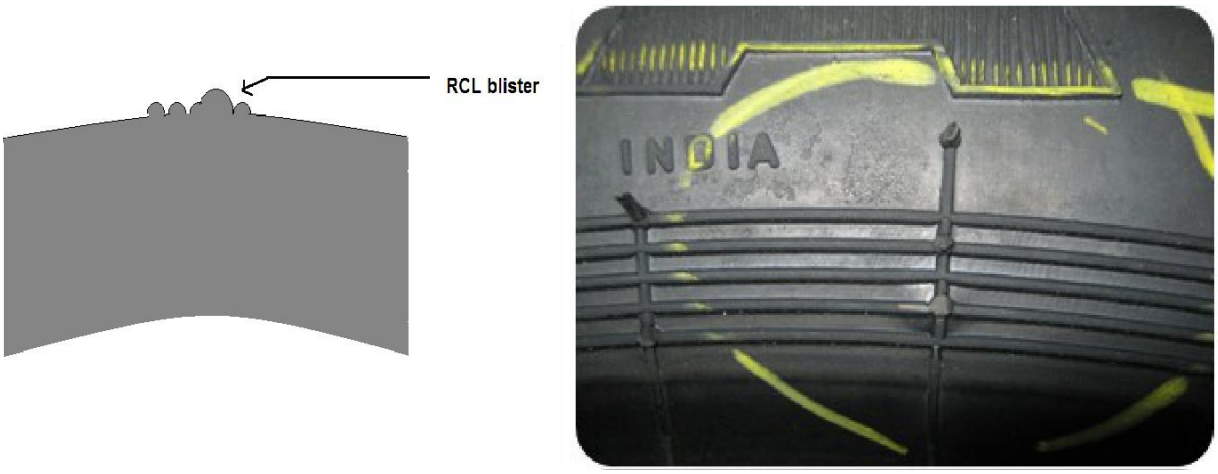
	application
Wrong bladder usage	Ensure correct usage of bladder
Cold water tempt not as per spec	Check cold water supply tempf and if high check cooling tower fan operation and inform Utility
Cold water circulation improper	Check cold water circulation pressure and set it as per Spec (In circulation Pressure should be same as HW
	Check cold water returns operation proper flow
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other; keep minimum green tyre inventory
Over life bladder usage	Check the bladder conditon and replace
Bladder bulging	Check cold water circulaton, drain, and vacuum operations
	Check for any blockages in inlet / outlet pipelines & get it corrected

6. LIGHT BEAD

POSSIBLE CAUSES	ACTION
Bead perimeter high	Check the beads on BPR, if beads are loose, reject them
Wrong bead core	Check number of strands and layers in bead core
	Check the gauge and fabric
Chafer setting and gauge	Check for cleanliness of curing ring and blockages of vent holes
	Get them pin vented
Turn down ply less	Check ply width ,correct it at bias cuter and do not use
	lower width fabric
Loose turn ups	Caution the tyre builder
Wrong chafer	Ensure correct usage of chafer
Curing ring block vents	Get them cleaned by pin venting
Dirty curing rings	Get them cleaned

Wrong curing ring	Ensure correct usage of curing ring
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other; keep minimum green tyre inventory

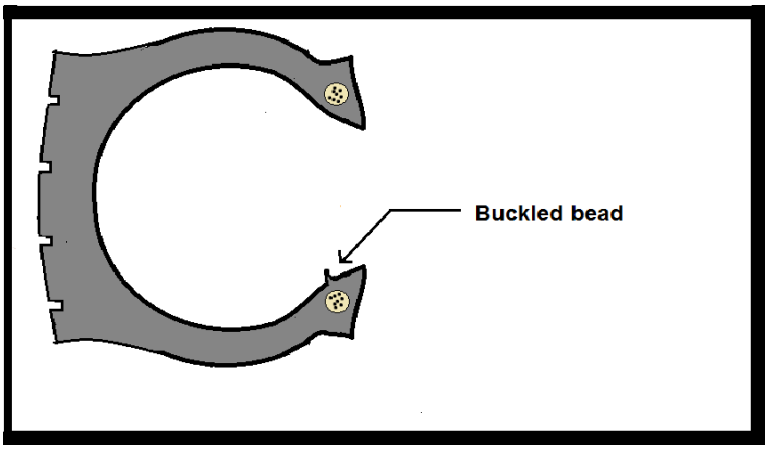
7. RCL BLISTER



POSSIBLE CAUSES	ACTION
Tread width low	Check tread width and if low reject them
Tread ends thick	Reduce the thickness at tread edges
FM in tread ends	Clean the foreign mater embedded in tread ends
Improper tread Skive	Correct the tread skive at extruder and consult Tech
Air traps under cushion	Get them poked though awl
	Ensure the knurling roll usage at extruder
	Check the cushion gauge at extruder, thinner cushion gauge will lead to air traps
Wrinkled treads	See the applicaton and working of bottom sttchers
	Freshen the plies with approved solvent / naphtha
	Ensure C118 / tread cement application on tread base
Of cantered tread	Check tread centering pointer and correct it
Wrong chafer	Ensure correct usage of chafer
Curing ring block vents	Get them cleaned by pin venting
Foreign maters	Get them cleaned
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other; keep minimum green tyre inventory
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech
Air traps in ply / tread while	Check for working of bottom sttcher

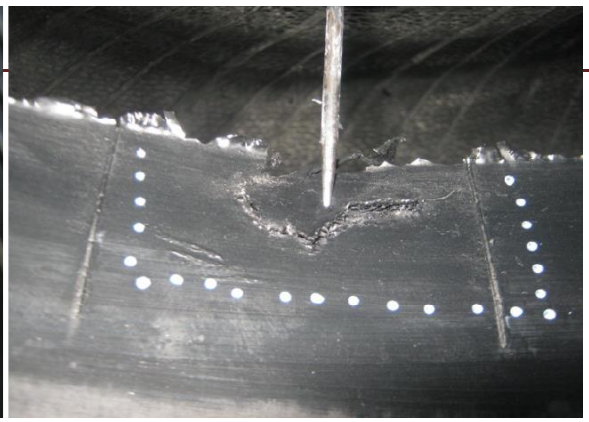
building	Freshen the plies with solvents / naphtha
	Apply hand sttcher before bottom sticher application
Chafer usage	Ensure right chafer usage

8. BUCKLED BEAD



POSSIBLE CAUSES	ACTION
Improper inner lube applicaton	Apply inner lube on under cut of green tyre at bead region
	Get the green tyres re sprayed
Vacuum high	Check the vacuum and set it as per specf if required throtle the vacuum gate valve
Shaping improper	Check the shaping, set as per specf if required get it rectified
Wrong moulding	Check for correct size green tyre and its identification
Of centre loading	Take care while loading
Over life bladder	Check the bladder conditon and get it replaced
Wrong bladder	Ensure the correct bladder usage as per spec
Low HP steam	Check the leakage through the valve drain, vacuum, cold water return, hot water recovery and get it rectified
Delayed HP steam	Check the functoning of HP supply valve , chocking and non-return Valve
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other; keep minimum green tyre inventory

9. DEFECTIVE BEAD



POSSIBLE CAUSES	ACTION
Wrong bead core	Check number of strands and layers in bead core
Of centre curing ring	Check the centering of curing ring wfrftf mould and get it corrected
Damaged curing ring	Check for any damages on curing ring and replace
Wrong curing ring	Check for correct usage of curing ring

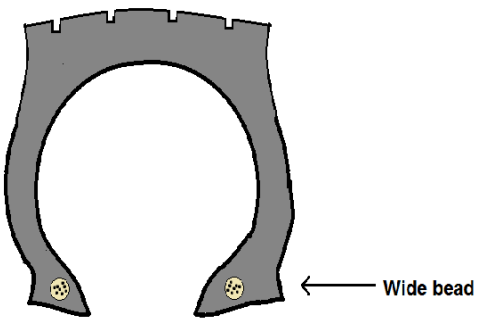
10. CHAFER CRACK

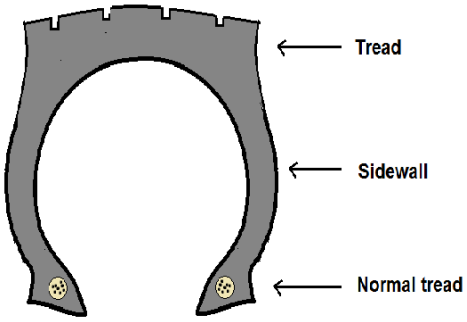
POSSIBLE CAUSES	ACTION
Tread length low	Reject them
Tread width low	Reject them
Tread ends thick	Reduce the gauges at tread ending in consultaton with Tech
FM in tread ends	Clean the foreign mater embedded in tread ending
Chafer set low	Ensure correct chafer setting
Loose turn ups	Caution the tyre builder
Off cantered tread	Check the tread centering pointer and set it right
Excess tread stitchout	Check tread width, if more reject the treads
	Check the back sttcher pressure
	Check the botom sttcher pressure, if high, set it as per spec

11. OFF CENTER LOADING

POSSIBLE CAUSES	ACTION
Bead perimeter low	Check the beads on BPR, if beads are tght, reject them
Wrong bead core	Check the beads for number of strands and plies
Off cantered bead	Check concentricity of BPR and drum, and correct it
Off cantered curing ring	Check centering of curing ring with respect to mould
Wrong curing ring	Ensure correct usage of curing ring
Shaping improper	Check the shaping, set as per specf if required get it rectified
Wrong moulding	Avoid wrong moulding, check for correct size and identfcaton
Of center loading of green tyre by the operator	Train the press operator
Bladder collapsing while shaping	Check top ring down operaton;
	Check for any hydraulic leaks; get them rectified
Shaping getng cut while loading	Check shaping pressure and set it right
	Set the shaping ‘cams‘
	Check pause height and time
	Check any leakage through any valves
Bladder height more	Set it as per spec
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other keep minimum green tyre inventory
Old green tyref	Green tyres are to be used on FIFO basis or consult Tech
Piston cylinder bend	Check the piston cylinder and replace

12. WIDE BEAD





POSSIBLE CAUSES	ACTION
Wrong bead core	Check number of strands and layers in bead core
Tread gauge high	Check the tread gauges, if high consult Tech
Drum set high	Check the drum set and set it right
Loose turn ups	Explain / Caution the tyre builder
Loose turn down	Explain / Caution the tyre builder
Wrong ply	Check whether building constructon is followed as per specf or not
Wrong curing ring	Ensure usage of correct curing ring
Ply gauge high	Check ply gauge, if high consult Tech

Sidewall Defect

1. LIGHT SIDE WALL

POSSIBLE CAUSES	ACTION
Wrong tread stock	Use tread stock as per specf Which is released as OK by Techf
Tread length low	Reject the treads
Low side wall gauges	Reject the tread
Wrinkled turn ups	Explain / Caution the tyre builder
Wrinkled treads	See the applicaton and working of back / bottom stitches
	Freshen the plies with approved solvent / naphtha
	Ensure C118/ tread cement application on tread base
	Check the back / bottom sttcher pressure
Of cantered tread	Check tread centering pointer and correct it
Blocked mould vents	Clean them by pin venting
Less mould vents	Increase the mould vents in consultation with Tech
Dirty SW (mould)	Clean the mould / send the mould for sand blasting
Shaping improper	Check the shaping, set as per specf if required get it rectfed from Engg Dept
Mould lubricant excess	Check the applicaton and concentrating of mould lubricant
Mould temperature	Set the mould tempt as per spec
Top 'O' ring leak	Replace the leaky ‘O’ ring
Steam leak in mould	Arrest the steam leaks
Moisture (water) in mould	Check the source from where water is coming on the mould and arrest the leaks
	Blow out the water from mould
Blocked botom mould surface lines	Clean all the air channels from the botom surface of the moulds
Foreign maters	Clean the foreign mater which is on the mould
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech
Platen leaks	Arrest the leaks/ check hose pipe as well

Water below ring part no 1	Clean fitter of dome drain
	Check NRV of dome steam line
	Check steam trap functioning
Water on ring part no 3	Check top 'O' ring leakage
	Check suction pipe

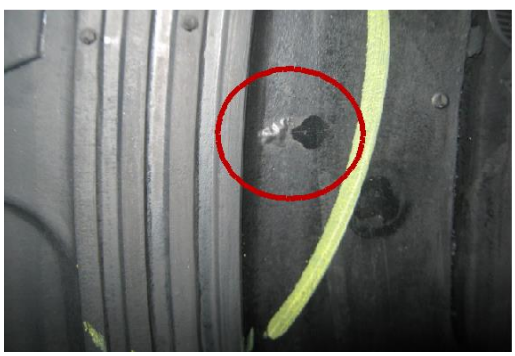
2. CRACK/BLISTER ON BUTTRESS

POSSIBLE CAUSES	ACTION
Tread length off	Reject the material
Tread gauge low	Increase the gauges
Of cantered tread	Check tread centering pointer and set it right
Foreign maters	Clean the foreign mater
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other ;keep minimum green tyre inventory
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech
Of side wall applicton (truck)	Check side wall applicaton and caution the tyre builder
Contaminated treads	Check for any contaminaton of FM in tread or side wall

3. SIDEWALL CRACK

POSSIBLE CAUSES	ACTION
Wrong bead filler	Ensure correct filler usage
Wrong bead flipper	Ensure correct flipper usage
Tread gauge high	Reduce tread gauges
FM in tread ends	Clean the tread endings
Wrinkled turn ups	Caution tyre builders
Wrinkled treads	See the applicaton and working of bottom stitcher
	Freshen the plies with naphtha/ solvents
	Ensure C118 / tread cement application on tread base
Excess tread sttchout	Check tread width, if excess reject the treads
	Check the botom sttcher pressure, if high, set it as per spec
Bottom sttcher pressure high	Set it as per specf, excess pressure lead to more tread stitch out
Blocked mould vents	Clean them by pin venting
Less mould vents	Increase mould vents If necessary
Shaping improper	Check the shaping, set as per specf if required get it rectfed from Enggf Dept
Wrong moulding	Avoid wrong moulding, check for correct size and identfcaton
Off centre loading	Train the press operator
Mould lubricant excess	Check the applicaton and concentrating of mould lubricant
Delayed HP steam	Check the functoning of HP supply valve and non-return valve and rectify
Moisture (water) in mould	Check the source from where water is coming on the mould and arrest the leaks
	Blow out the water from mould
Foreign mater	Clean the foreign mater
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other ; keep minimum green tyre inventory
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech
Improper green tyre cleaning	Reeect the green tyres / get them cleaned

4. SIDEWALL BLISTER



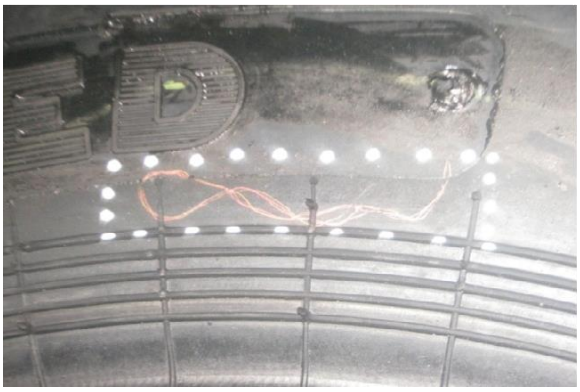
POSSIBLE CAUSES	ACTION
Wrong tread stock	Use tread stock as per specf (Which is released as OK by Tech)
Tread length more	Reject them
Low side wall gauge	Increase the gauges
Fabric moisture high	Check moisture percentage and consult Tech
Bare fabric	Remove bare fabric and if already used, apply C118 solution
Ply /tread air entrapment	Check for working of back / bottom sttcher
	Check for back / bottom sttcher pressure
	Freshen the plies
	Pat the treads by hand on side wall
	Apply hand sttcher before bottom sttcher application
	Check the side wall gauges, if side wall gauges are thin get the increased
No poking of green tyres	Check for poking needle length
	Check for number of holes and position
	Check for thr' & thr' poking
	Poke the air traps
Bottom sttcher pressure high	Set it as per spec
Foreign maters on sidewall	Clean the foreign matters
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech

5. RCL FLASH

POSSIBLE CAUSES	ACTION
Wrong curing ring	Ensure the correct usage of curing ring
Gap between mould and part no 1	Reeect / replace the part no 1
	Piston cylinder is not going down fully afer lower ring

	down
	Check for any foreign mater between mould surface and part no 1
	Check for bend part no 1 and replaced
	Eccentric fitment of part no 1; get it rectified
	Check for mould and curing ring part nof 1 dimensions at the register area

6. CORD ON SIDEWALL

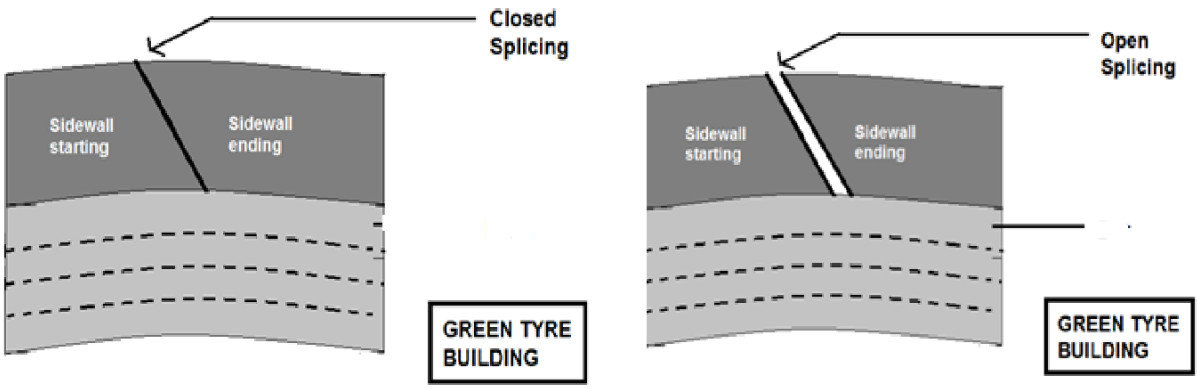


POSSIBLE CAUSES	ACTION
Poor squeegee on calendered fabric	Do not use the fabric
	Inform 4-Roll calendar
Hot knife not usage while ply cutting	Use hot knife while cutng the plies/ or while flling of plies in the servicer
	Remove the loose cord while building
	Cut the loose cord from the green tyre
Improper green tyre cleaning	Clean the green tyre and ensure that cord is not on the tyre
Bad handling of green tyres on shop floor	Avoid rolling of green tyre on floor
	Stack the green tyre on the racks
	Do not throw the green tyres on floor near building machine

7. MIS PLACED SERIAL

POSSIBLE CAUSES	ACTION
Improper holes on serials	Check the serial punched holes, they should be thr' & thr'
	Take up with supplier
	Re punch the holesf
Damaged hole thread on mould	Re thread the mould
Improper mould blowing	Check mould air blowing pressure
	Caution the press operator
	Remove the serial in mould cavity and cylinder pits

8. OPEN SIDEWALL SPLICE



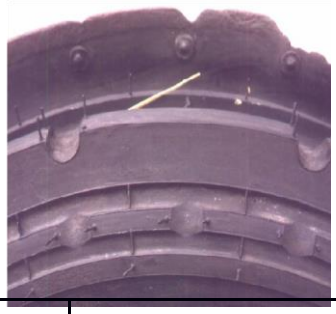
POSSIBLE CAUSES	ACTION
Tread length low	Reject the tread
Improper tread skive	Correct the tread skive at extruder and consult Tech
Improper tread splicing	Check tread splicing, it should be of set by 2 mmf, cauton the tyre builders
	Freshen the tread splice with naphtha
	Ensure C118 / tread cement solution on tread splice
	Side wall ends to be stretched and pressed one over the otherfThey should not be open
No tread splice pressing / eamming	Check whether tread splice is cemented or not
	Check tread splice eamming pressure and set it right
Shaping excess	Check the shaping, set as per specf if required get it rectified
Foreign maters	Clean the foreign mater
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech

9. SIDEWALL SEPERATION

POSSIBLE CAUSES	ACTION
Tread stock	Use tread stock as per specf (Which is released as OK by Tech)
Tread length high	Reject them
Tread gauge low on side wall	Increase the gauges
Fabric moisture high	Check moisture percentage
Bare fabric usage	Remove bare fabric , and if used already apply C118 Or approved solution
Ply /tread air entrapment -	Check for working of back / bottom stitcher
	Check for back / bottom sttcher pressure
	Freshen the pliesf
	Pat the treads by hand on side wall
	Apply hand sttcher before bottom sttcher application
No poking of green tyres	Check for poking needle length
	Check for number of holes and positions
	Check for thr' & thr' poking
	Poke the air traps
Bottom sttcher pressure high	Set it as per spec
Foreign maters	Clean the foreign maters
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech
Improper functoning back sttcher / bottom sttcher	Check for functoning and travelling of back / botom sttcher
	Check gap between disk of back / botom sttcherf There should not be any gap
	Check the pressure
	Check the back / bottom sttcher disks

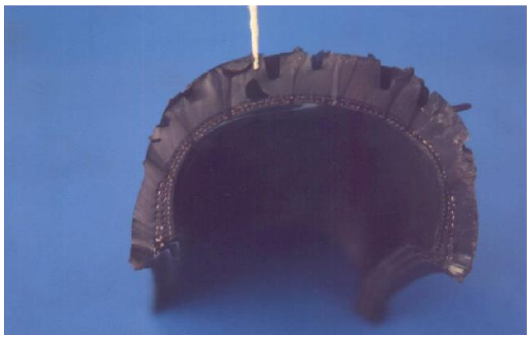
Tread Defect

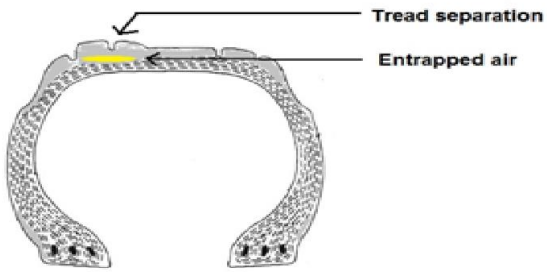
1. HEAVY RIND/ OPEN MOULD



POSSIBLE CAUSES	ACTION
Ply angle high	Check ply angle, if angle is high do not use the fabric & consult Tech
Drum set high	Check the drum set and set it right
Shaping excess	Check the shaping, set as per spec
Wrong moulding	Check that correct tyre size going into respective mould
Gap between mould halves	Check the gap and bring down top mould
	Check the press alignment periodicallyf Check the lubrication system regularly
	Check the closing force, if less, increase it
Parallel ply construction	Check the ply applicaton, it should be crisscross
	Identfy the green tyre and scrap it
Mismatch of Bull gear Low platen temperature	Correct the position Check the temperature and set it as per spec

2. TREAD SEPERATION





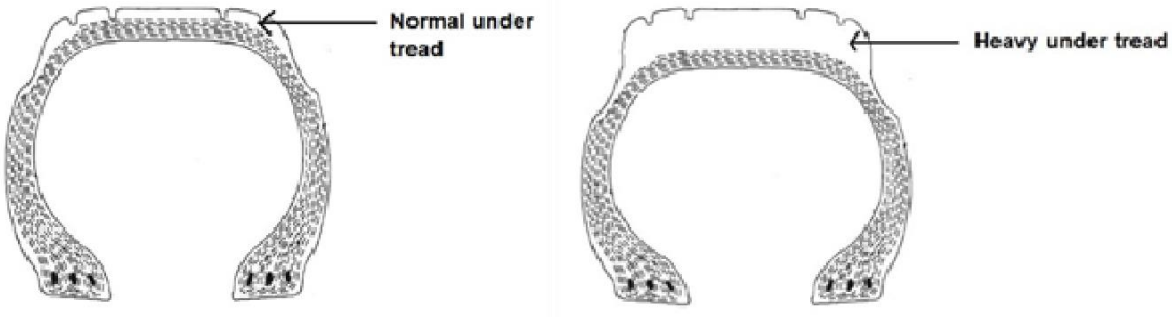
POSSIBLE CAUSES	ACTION
Ply angle low	Check ply angle, if low then do not use and consult Tech
Tread length high	Reject the treads
Tread gauge low	Increase the gauges to spec values
Air trap under cushion	Get them poked

	Ensure the biscuit roll usage at extruder
	Check the cushion gauge at extruder, thinner cushion gauge will lead to air traps
No ply perforation	Ensure ply perforaton at calendering
Drum set low	Check the drum set and set it as per spec
Off cantered tread	Check the tread centering pointer and set it rights
Ply / tread air entrapment	Check for working of back / bottom sttcher
	Check for back / bottom sttcher pressure
	Freshen the plies
	Pat the treads by hand on side wall
	Apply hand sttcher before botom sttcher application
C118 soluton not applied or dried	Check C118 soluton applicaton on tread base
No thr' & thr' poking	Check for poking needle length
	Check for number of needle and rounds
	Check for thr' & thr' poking
	Poke the air traps
Wet treads	Mop the treads and remove water traces
Bottom sttcher pressure low	Set it as per spec
Gap in back and botom sttchers when applied	Get it corrected from Enggf Dept
Shaping improper	Check the shaping, set as per spec
Mould temperature	Set it as per spec
Gap in mould / platen	Check the gap and tighten the mould bolts
	Check botom surface of the mould for warp nes
Steam trap not functioning	Get it replaced
Twisted hose pipes	Replace the hose pipe
Wrong curing cycle	Check the curing cycle and set it right
Wrong curing steps	Check every step's tming and set it right
Shaping is getng cut while loading	Check shaping pressure and set it right
	Set the shaping ' cams '
	Check pause height and time
	Check any leakage through any valves
Blocked mould surface lines on bottom surface	Clean all the air channels from the botom surface of the mould

3. TREAD LAMINATION

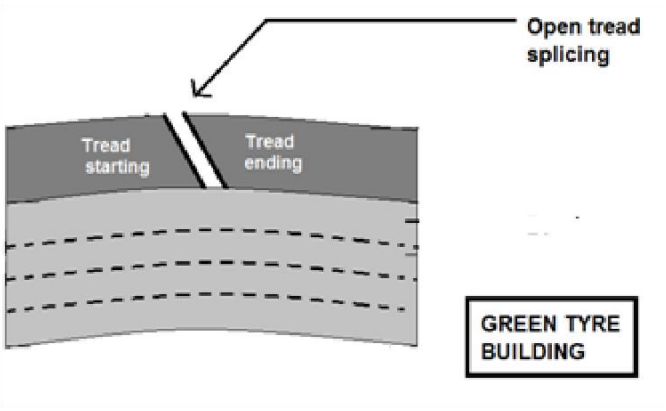
POSSIBLE CAUSES	ACTION
Contaminaton of FM in treads	Remove the foreign mater / reject the treads
Polythene contaminated tread	Reeect the treads for refning / retread the green tyre
Very old work-away used for extrusion	Reeect the treads and consult Tech

4. HEAVY UNDER TREAD



POSSIBLE CAUSES	ACTION
Ply angle high	Check ply angle, if angle is high do not use the fabric & consult Tech
Tread gauge high	Reduce tread gauges to spec values
Drum set high	Check the drum set and set it right
Off cantered tread	Check the tread centering pointer and set it rights
Parallel cords	Check the ply applicaton, it should be crisscross
	Identfy the green tyre and scrap it
Shaping excess	Check the shaping, set as per specf if required get it rectified
Wrong moulding	Ensure right size in right mould

5. OPEN TREAD SPLICE



POSSIBLE CAUSES	ACTION
Tread stock	Use tread stock as per specf (Which is released as OK by Tech)
Tread length low	Reject the tread
Improper tread skive surface cutting	Correct the tread skive at extruder
Improper tread splicing	Check tread splicing, it should match or it should be of-set by 2 mmf, caution the tyre builders
	Freshen the tread splice with naphtha
	Ensure C118 application
	Side wall ends to be stretched and pressed one over the otherf They should not be open
Hot knife sealing not done on tread splice	Hot knife to be used on tread splice for sealing
No tread splice pressing / Cementing	Check whether tread splice is cemented or not
	Get green tyres pressed
	Check tread splicing pressure and set it right
Shaping excess	Check the shaping & set as per specf if required get it rectfed from Enggf Dept

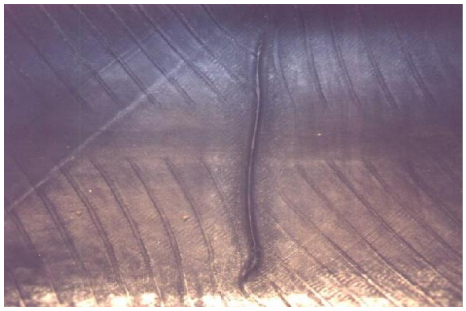
Mould lubricant excess	Check the applicaton and concentraton of mould lubricant
Foreign maters	Clean the foreign mater
Deformed green tyre	Avoid deformaton, store them on rack and do not keep the green tyre one over the other
Old green tyre	Green tyres are to be used on FIFO basis and consult Tech

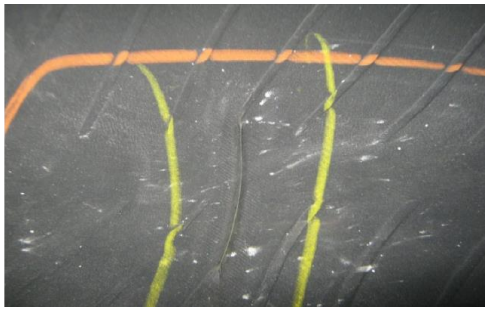
6. SPONGY TREAD

POSSIBLE CAUSES	**ACTION**
Tread stock	Use tread stock as per specf (Which is released as OK by Tech)
Tread porosity	Check for porosity in the tread, if observed scrap the tread
	Check extrudate temp
	Check Extruder feed strip supplyf (lack of material may cause porosity)
Wet treads	Mop the treads and remove water traces
Wrong moulding	Check that correct tyre size going into respective mould
Low HP steam	Check the leakage from the valve drain, vacuum, cold water return, hot water recovery
Delayed HP steam	Check the functoning of HP supply valve and non-return valve
Mould temperature low	Set it as per spec
Wrong curing cycle / short cycle	Check the curing cycle and set it as per spec
Wrong curing steps	Check every curing step and set it as per spec
Steam leak in mould	Arrest the steam leak
Moisture (water) in mould	Check the source from where water is coming on the mould and arrest the leaks
	Blow out the water from mould
Water is not fully drained from bladder	Check drain / vacuum operator
Improper functoning of additional drain valve	Check functoning of additonal drain valve and get it rectified

Carcass Defect

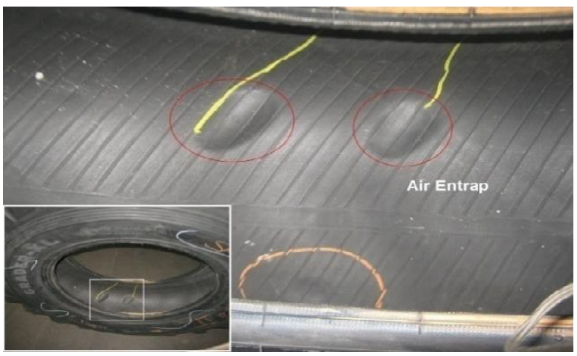
1. BUCKLED CARCASS





POSSIBLE CAUSES	ACTION
Ply angle high	Check ply angle, if angle is high do not use the fabric & consult Tech
Drum set high	Check the drum set and set it right
Improper inner lube applicaton	Apply inner lube on under cut of green tyre at bead region
	Check for inner lube soluton concentraton
Vacuum high	Check the vacuum and set it as per spec
Shaping less	Set it as per specf, increase the shaping pressure
Wrong moulding	Avoid wrong moulding, check for correct size and identification
Over life bladder	Check the bladder condition and replace
Wrong bladder	Ensure correct bladder usage
Bladder height off	Check bladder height and set as per spec

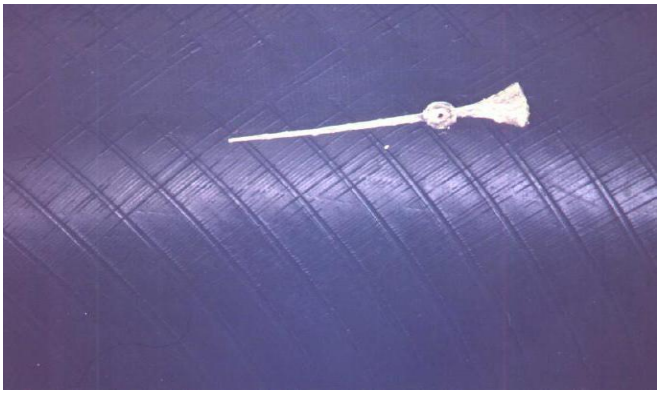
2. PLY SEPARATION



POSSIBLE CAUSES	ACTION
Fabric moisture high	Check moisture percentage and consult Tech
No ply perforation	Ensure ply perforation at bias cuter
Lack of fabric dip	Ask to improve fabric dip
Dip coagulation	Clean the rubber rollers at dipping unit
Dry fabric	Do not use the fabric if freshening by naptha does not help

Loose turn ups	Caution the tyre builder
Wrinkled turn ups	Caution the tyre builder
Ply / ply air entrapment & no poking	Identfy the air traps in plies and get them poked
	Ask builder to freshen the plies and apply the plies slightly under stretch condition
	Check the back / bottom sttcher pressure
Foreign maters	Remove/ clean the FM embedded on plies

3. SPREAD CORDS

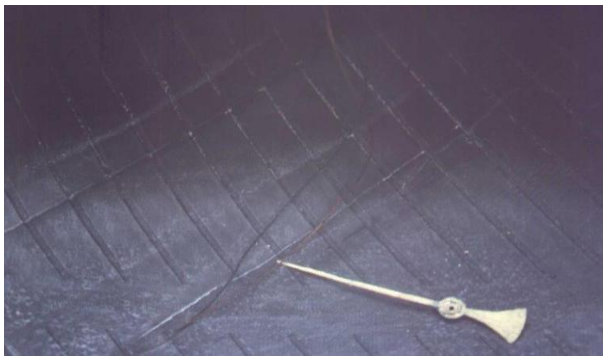


POSSIBLE CAUSES	ACTION
Ply angle low	Check ply angle, if low do not use the plies
Drum set lo	Check the drum set and set it as per spec
No thr' & thr' poking of green tyres	Check for poking needle length
	Check for number of needles and rounds
	Check for thru' & thru' poking
	Poke the air traps
Insufficient shaping pressure / shaping delay	Check shaping pressure and set it right
	Set the shaping ' cams '
	Check pause height and time
	Check any leakage through any valves
	Increase the shaping pressure if required

4. LEAKY BLADDER

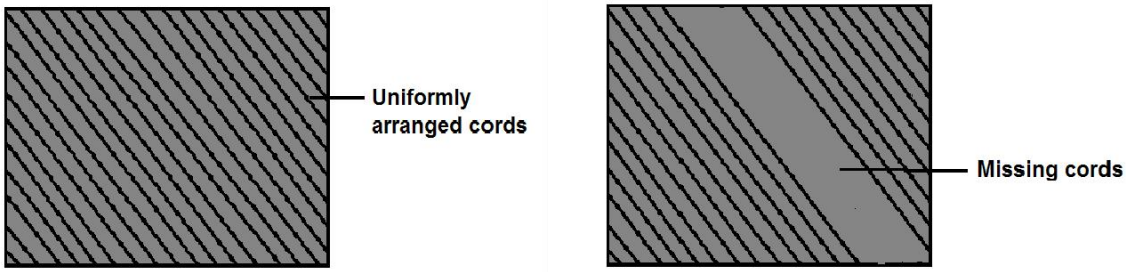
POSSIBLE CAUSES	ACTION
Over life bladder	Check the bladder condition and growth and replace it
Wrong bladder	Ensure correct bladder usage
Leaky bladder	Check a pin hole leakage from bladder by giving shaping and replace the same
Uneven shaping	Check the shaping, set as per spec
	Check the blockages in pipelines, check drain / vacuum operaton, check HfPf fushing at end of cycle
	Check piston seal leakage and remove the hydraulic leakage
Missing allen bolts from bladder assembly	Fix all allen bolts, otherwise bladder 'T' will slip from assembly
Of centre loading	Care to be taken while loading
Deformed green tyres	Avoid deformaton, store them on rack and do not keep the green tyre one over the other
Poker needle in green tyre	Remove the needle in the green tyre
Bladder assembly operation	Check the bladder 'T' positon in part nof 1,2 3 & 4f It should ft properly in groove of clamping ring
	Clean the 'T' positon of part nof 1,2,3 & 4 where bladder 'T' is getting fixed
	Check whether all allen bolts are present and tight
Bladder inspection	Inspect every bladder for blister / sepf, etcf defects, check fash cutting at bladder 'T'
Bladder degradation	Check water treatment at utlity for dissolved oxygen in water
	Check for any hydraulic leakage through cylinder in the bladder and correct it

5. LOOSE CORD



POSSIBLE CAUSES	ACTION
No hot knife usage while ply cutting	Use hot knife while ply cutng / and flling of plies in a servicer
No removal of loose cord by the builder while building	Remove the cord while building
	Cut the loose cord from green tyre

6. MISSING CORDS



POSSIBLE CAUSES	ACTION
Defectve fabricf	Remove the defectve fabric at bias cuter / building
Air traps at fabric calendaring	Use pricker roll on 4-roll calender or do the operaton manually

7. CARCASS CRACK

POSSIBLE CAUSES	ACTION
Ply angle high	Check ply angle, if angle is high do not use the fabric
Drum set high	Check the drum set and set it right
Parallel cords while building	Check the ply applicaton, it should be crisscross
	Identfy the green tyre and scrap it
Shaping excess	Check the shaping, set as per spec
Wrong moulding	Check that correct tyre size is going in respective mould
Gap between mould halves	Check the gap in moulds by checking closing force, if less, then increase the closing force

Other Defect

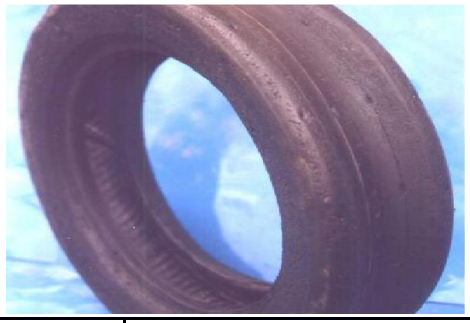
1. SPONGY

POSSIBLE CAUSES	ACTION
Vacuum low	Check the vacuum pressure and set it as per spec
Low HP	Check the leakage through the valve drain, vacuum, cold water return, leakage from centre Mechanism, hot water recovery
Low hot water	Check the leakage from the valve drain, vacuum, cold water return, hot water recovery
Drain operation -	Check drain operation
	Check diaphragm sheet for leakage and replace
	Check any blockage in line, replace -
	Check ID of hose pipe if it is less replace the same
Vacuum operation	Check vacuum operation
	Check diaphragm sheet for leakage and replace
	Check any blockage in line, replace -
	Check ID of hose pipe if it is less replace the same
Gap in mould / platen	Check the gap between mould / platen
	Tighten the mould's Allen bolts use sprit level for proper levelling
Twisted hose pipes	Replace the hose pipe
Wrong connecton of hose pipes	Check the hose connecton between main header and bladder inlet / outlet position and correct it
Wrong curing cycle	Check the cycle and set it as per spec
Wrong curing steps	Check the tming of all curing steps and set it as per spec
Leaky cold water supply valve	Check the cold water supply valve and replace it
Piston seal leak	Check for piston seal leak, if leaky, replace it

2. TEMPERATURE FAILURE

POSSIBLE CAUSES	ACTION
Instrument Air fail	Check the instrument air pressure and inform utility
	Do not load the press if instrument air fails
Mould temp low	Check the mould tempf and set it right as per spec
Gap in mould / platen	Check the gap between mould / platen
	Tighten the mould's Allen bolts
Trap not functioning	Get it replaced from Enggf Dept
Wrong curing cycle	Check the cycle and set it as per spec
Wrong curing steps	Check the tming of all curing steps and set it as per spec
Steam leak in mould	Arrest the steam leak check for pin holes
Warp moulds	Do not use the mould for production and consult Tech
Platen inlet pipe leaks at entry point of platen inlet	Arrest the steam leak
Heavy leakage through leaky bladder	Increase the mould tempf to maximum for that round
	Close the inlet / outlet gate valve of that partcular cavityf Where bladder is heavily leaking
Tread extruded with Master batch	Check whether master batch is used for tread extrusion, if used, do not use the treads at all
	Identfy the green tyres if treads being used and scrap them
	Use only fnal batches okayed by Tech
Immediate press load afer breakdown	Do not load the press immediately afer long breakdownf Keep the press in close condition
	Keep the press for atending the required mould temp
	Check the tempf and then load the press

3. LOW HP/HW



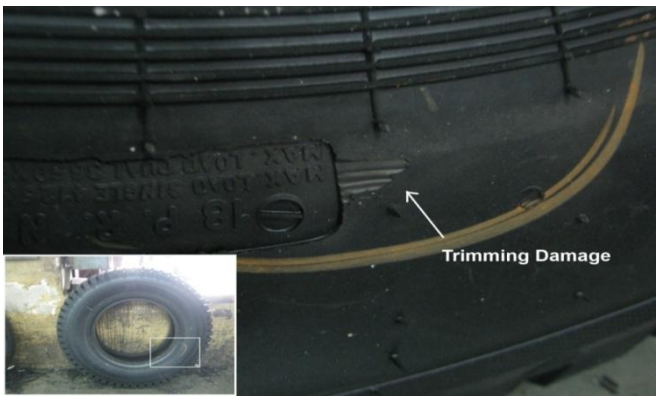
POSSIBLE CAUSES	ACTION
Leaky bladder	Replace the bladder
Low hot water	Check the leakage from the valve drain, vacuum, cold water return, leakage from Centre mechanism ,hot water recovery
Delayed HP	Check the functoning of HP supply valve and non-return valve
Instrument Air fail	Check the instrument air pressure and inform utility
	Do not load the press if instrument air fails
HP operation	Check HP operation
	Check diaphragm sheet for leakage and replace it
	Check any blockage in line, replace -
	Check ID of hose pipe if it is less replace the same
HW operation	Check HW operation
	Check diaphragm sheet for leakage and replace
	Check any blockage in line, replace -
	Check ID of hose pipe if it is less replace the same
Wrong curing cycle	Check the cycle and set it as per spec
Wrong curing steps	Check the tming of all curing steps and set it as per specf
Leaky valve HWR	Replace the leaky valve
Leaky valve shaping	Replace the leaky valve
Leaky valve vacuum	Replace the leaky valve
Leaky valve drain	Replace the leaky valve
Leaky valve cold water	Replace the leaky valve
Leaky valve CWR	Replace the leaky valve
Instrument air pressure less	Check air leakage on instrument air line circuits
Malfunctoning of solenoid valves	Check the functoning of all solenoid valves, service them or replace them
	Check press closing positon, under close positon of press lead to low air on programme air valve Rectify
Leakage through hydraulic	Check and replace the same

release and lower ring down Diaphragm sheet	

4. O-RING LEAK

POSSIBLE CAUSES	ACTION
Inlet hose connecton gasket lea	Replace the gasket
Bottom 'o' ring leak	Take cold water test and replace the bottom ‘O’ ring
	Ensure correct size ‘O’ ring usage
Top ring raise / down hose leaky	Replace the same
Cylinder head leak	Rectify the same

5. TRIMMING DAMAGE



POSSIBLE CAUSES	ACTION
Blunt trimming knife	Sharpen the trimming knife or replace
	Damaged teeth of trimming knife replace
Wobbling of trimming m/c	Check the trimming machine alignment and set it right
	Check whether tyres are bulge in nature
	Check whether tyres are bent
Trimmer oriented	Carelessness of trimmer can lead to trimming damages hence caution the trimmer

6. DE-SHAPED TYRES

POSSIBLE CAUSES	ACTION
Pinched between arm and bladder	Check the arm roller setng; it should be at center wfrftf bladder assembly Set it right
	No or missing rollers on arms Get them fixed
	Tilted arm rollers, get them fixed horizontally
	Check arm forward operaton and set it properly
	Check lower ring operaton while tyre is getng lifed on arms and set it right
Bladder bulging	Check cold water circulaton, drain, and vacuum operations
	Check for any blockages in inlet / outlet pipelines
	Ensure correct usage of cylinder head cap
Operator oriented	Tyre is kept longer tme by the press operator in arm pinched conditon so cauton the press operator & avoid it

7. UNDER CURE

POSSIBLE CAUSES	ACTION
Gap in platen and mould	Check the gap and tghten the mould's Allen bolts

	Reject warped mould
Low mould temperature	Set it as per spec
HP operation	Check HP operation
	Check diaphragm sheet for leakage and replace
	Check any blockage in line, and remove the blockages
	Check ID of hose pipe if it is less replace the same with higher ID of pipe
HW operaton	Check HW operation
	Check diaphragm sheet for leakage and replace
	Check any blockage in line, replace
	Check ID of hose pipe if it is less replace the same
Wrong curing cyclef	Check the cycle and set it as per spec
Wrong curing stepsf	Check the tming of all curing step and set it as per spec

8. OVERCURED

POSSIBLE CAUSES	ACTION
Press does not open afer curing	Get it opened without delay
a)Press over travelled and locked	Get it rectified
b)Timer stuck up at the last step	Inform maintenance Deptf and get it rectified
c)Malfunctoning of pressure switch	Inform maintenance Deptf and get it rectified
d)Pressure in the bladder	Check drain and vacuum operaton and get it rectfed if it is not OK
High Mould temperature	Set it as per spec
Wrong curing cycle	Check the cycle and set it as per spec
Wrong curing steps	Check the tming of all curing step and set it as per spec
Tyre remain in botom mould and gets over cure	Remove the tyre from the press with extra efforts
Failures of lower ring raise operation	Rectfy the lower ring raise problem

9. FOREIGN MATERIAL CONTAMINATION

POSSIBLE CAUSES	ACTION
Bad handling of green tyres	Do not throw the green tyre on foor near building machine or any other placef Keep them properly or stack them on racks
	Shif the green tyre by lifing up from building machine to conveyorf Do not roll them on floor
	Keep minimum green tyre inventory
Damaged floor	Repair the damaged foor surfaces as and when observed
Improper housekeeping	Keep the area / foor clean all the tme where green tyres are going to be handled on floor for various operations
Improper green tyre cleaning	Clean the green tyres properly before loading in the press
Engg Materials lying on the floor	Remove the Enggf Materials from the area afer atending to break downs

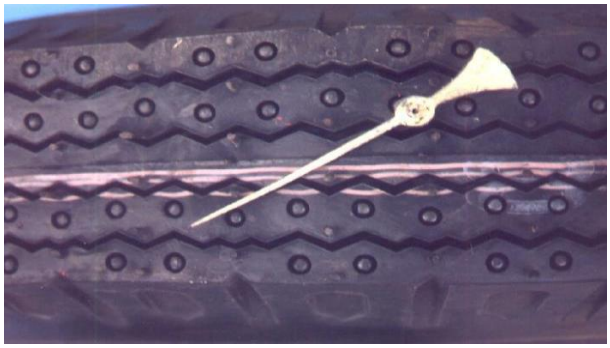
10. INNER PAINT CONTAMINATION

POSSIBLE CAUSES	ACTION
Improper inner paint application	Apply inner paint on under cut of green tyre at bead region
	Ensure that the paint applicaton is from bead to bead inside the green tyre and not over the tyre
	Check for inner paint soluton concentraton
Improper mould blowing	While shaping, paint falls in the mould that is to be blown out carefully by the operatorf Caution the press operator

11. OFF MOULD REGISTER/ALLIGNMENT

POSSIBLE CAUSES	ACTION
Wrong mould ftment or defective mould	Check for correct ftment of mould halvesf Top and botom indicaton marking on mould should match
	Check for broken / bent dowel blocks of moulds and get the corrected
	Find the reason why mould is getng shifted and correct it
	Tighten the mould's Allen bolt properly
	If misalignment is through out the circumference of the tyre then only it can be rectfedf Check for the same
	If alignment is matching at one side but not matching on the other side, then it is a mould defect, consult Tech

12. NO PCI



POSSIBLE CAUSES	ACTION
PCI pressure low	Check the PCI pressure and set it as per spec
Tyre stuck to mould	Mould lubricant to be spread periodically on the mould
Wrong PCI rim size	Check the PCI rim size and get it replaced
PCI air connection	Check the PCI pressure
	Check the PCI connecton is from correct main line
	Two connectons for each PCI rim

About the Author

Mr Sunil Kumar Jagasia, B.Sc , LPRI , PGDOM , AMIRI , Member of RSDC , IPI ,QCFI Auditor for ISO , Assessor for CII Exim bank .Having 43 years experience in Tyre Technology , Plastic and composite recycled products.

He Joined LPRI Delhi in 1983 and then to Rajasthan Branch from day one as active members including delivering Technical lectures for students, he has interest in making process / machine model for training and writing books and manuals with total practical approach.