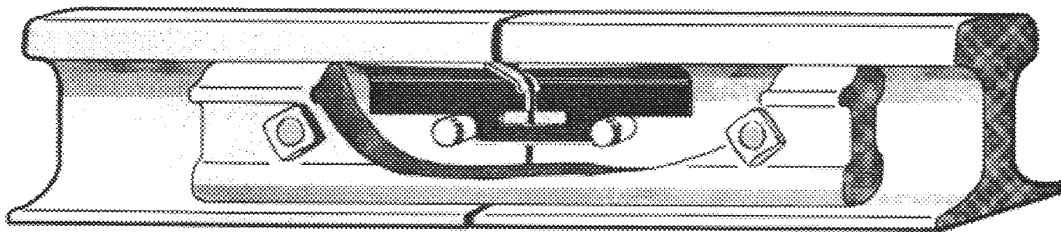


BANCE



TAPERED RAIL JOINT SHIMS



- Increases joint life to match the life of the rail
- Improves the running surface
- The elimination of dipped joints removes the prime cause of batter on the rail ends, thereby reducing the chance of rail end failures
- Quick to fit, minimal cost, and the life of the joint is extended indefinitely
- The frequency of maintenance visits is reduced so improving the economics of jointed track
- Technically the best engineering solution

FITTING PROCEDURE

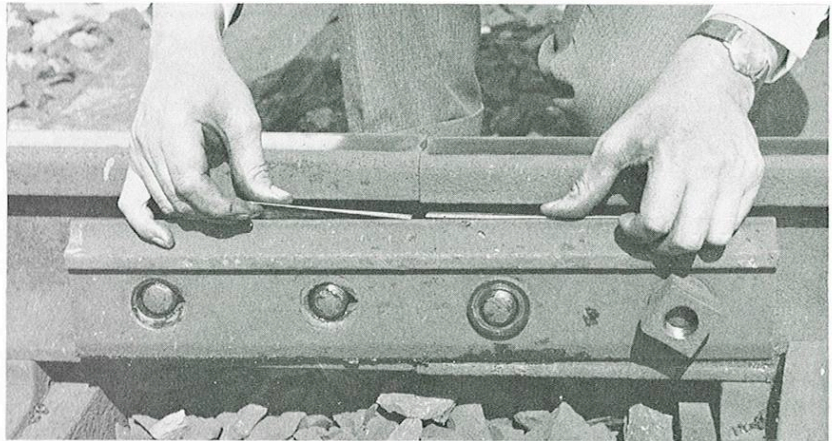
1. Measure dip using wedge gauge and straight edge to ascertain correct size of Shim



2. Loosen joint – inspect for cracks – and fit appropriate size of shim to both sides of the joint.

N.B. fitting of these shims may be aided by use of magnets.

TYPE H – HALF SHIM ▷
(or Types F or S)



N.B. it may not be necessary to dismantle the joint if a full inspection is not required.

TYPE HL – HALF SHIM WITH LIP ◁

3. Reassemble joint tightening centre bolts first and check joint level is restored.



Correctly shimmed joint ▷

4. Repack sleepers adjacent to the joint.

BANCE TAPERED RAIL JOINT SHIMS

FOR LEVELLING DIPPED RAIL JOINTS

Bance Shims are finely tapered inserts for traditional rail joints. Their need arises because of the 'dip' that results from the natural flexing of the joints under traffic. They have proved themselves in service worldwide over many decades.

'Rail joint dip' occurs as a direct result of wear on the underside of the rail head and on top of the fishplate - the upper fishing surfaces. It is not caused by permanent bend in the rails or wear on the rail surface. This 'dip' must be corrected for the safety of the track and rolling stock.

A joint that is dipped by 3mm, which is common, cannot expand and contract. This is because the tops of the rail bolt holes drop onto the fish bolts and squeeze them against the bottoms of the fishplates holes.

A number of different remedies can be employed to counter 'dip', but Bance Shims are the only effective long-term remedy. They also happen to be the cheapest and easiest to fit. Alternatives like new fishplates will not replace the wear on the underside of the rail head so the "new" joint starts dipped. Bending fishplates and/or rails simply transfers the wear gap to the bottom fishing surfaces so the joint is still not supported and it drops back after a few trains have passed. So a "straightener" if thought useful should never be used unless shims have been fitted first.

The reason for the effectiveness of Shims is that they are the only means by which all the metal worn from both rail and fishplates can be replaced. When a Shim is fitted the joint is immediately leveled, and it will hold its level for as long as a brand new joint.

Bance Shims are equally effective for fine adjustment to high-speed track as for putting a good top on old, worn-out track. If 'dip' is allowed to set in, deterioration of the joint increases rapidly. It is therefore best to Shim early in the life of the joint.

ADVANTAGES OF SHIMS

- **Increase joint life** to match the life of the rail.
- **Improve the running surface.** Enable traffic speeds to be increased with a much smoother ride.
- **Safer.** The elimination of dipped joints removes the prime cause of batter on the rail ends, thereby reducing the chance of rail end failures.
- **Economical.** Quick to fit, minimal cost, and the life of the joint is extended indefinitely.
- **Reduce track costs.** The frequency of maintenance visits is reduced so improving the economics of jointed track.
- **Technically** the best engineering solution.

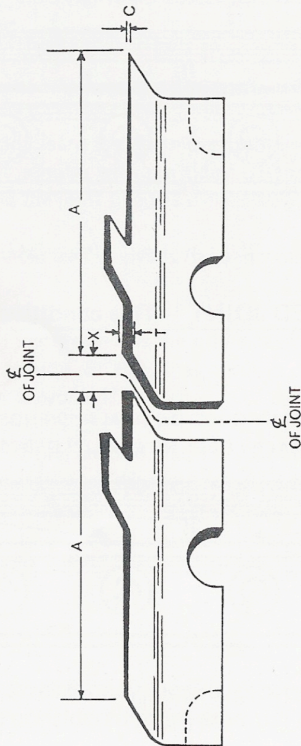
The use of BANCE SHIMS saves money, improves safety and improves the quality of the track. It should be considered an essential part of every railway's standard maintenance procedure.

SHIM DESIGN – MODELS & DIMENSIONS

Bance Shims are manufactured on unique special purpose machinery to tight standards of tolerance. They are made from a grade of steel specially developed for their application in the rail joint, which requires a material that has considerable toughness, yet is compatible with both rail and fishplate. Six sizes of thickness and angle of taper are manufactured to suit all degrees of wear, in three standard designs – Types 'F', 'S' and 'HL' – to accord with the usage required. All Shims are made specially to suit the rail section for which they are needed.

TYPE 'HL' HALF SHIM WITH LIP

TYPE 'HL' SHIMS are recommended for use in a joint where the wear in one rail end varies from the wear in the other as is normal for single direction traffic. The lip enables the fitting operation to be carried out more easily. When fitted the lip is bent down to hold the shim in position when later the joint is dismantled for maintenance. The lip also enables quick inspection, showing at a glance that joints are shimmed correctly.



STANDARD DIMENSIONS (Subject to our shop tolerances)						
SHIM No.	GREATER THICKNESS T	LESSER THICKNESS C Max		LENGTH A		
15	0.15"	3.8 mm	0.032" Max	0.81 mm Max	7 ¹ / ₈ "	194 mm
13	0.13"	3.3 mm	0.032" Max	0.81 mm Max	6 ¹ / ₈ "	168 mm
11	0.11"	2.8 mm	0.032" Max	0.81 mm Max	5 ¹ / ₈ "	143 mm
9	0.09"	2.3 mm	0.028" Max	0.71 mm Max	5 ¹ / ₈ "	130 mm
7	0.07"	1.8 mm	0.028" Max	0.71 mm Max	4 ¹ / ₈ "	105 mm
5	0.05"	1.3 mm	0.024" Max	0.61 mm Max	3 ¹ / ₈ "	92 mm

All shims are designed and manufactured specially to suit the rail section for which they are required.

Space at centre of joint between the two pieces of half shim 1¹/₈" to 1³/₈" standard.

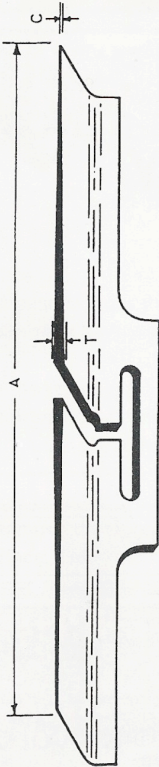
Four (4) pieces of half shims are required per joint, i.e. 2 left hand half shims and 2 right hand half shims.

When joint wear is equal, 4 pieces of the same size are used in the joint.

When joint wear is unequal, 2 pieces of one size and 2 pieces of another size are used in the joint.

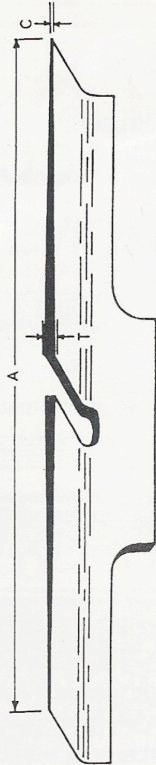
TYPE 'F' FLEXIBLE SHIM

TYPE 'F' SHIMS are recommended for use where both rail ends at a joint show equal wear. This will particularly be the case on track where traffic travels in both directions. It is harder to use this type of shim rather than Type 'HL' where possible, as a joint set comprises only 2 pieces.



TYPE 'S' SOLID LUG SHIM

TYPE 'S' SHIM Under conditions where rail is subject to considerable daily fluctuations in temperature this type is recommended.



STANDARD DIMENSIONS (Subject to our shop tolerances)						
SHIM No.	THICKNESS AT CENTRE T		THICKNESS AT ENDS C Max		LENGTH A	
15	0.15"	3.8 mm	0.032"	0.81 mm	16"	406 mm
13	0.13"	3.3 mm	0.032"	0.81 mm	14"	356 mm
11	0.11"	2.8 mm	0.032"	0.81 mm	12"	305 mm
9	0.09"	2.3 mm	0.028"	0.71 mm	11"	280 mm
7	0.07"	1.8 mm	0.028"	0.71 mm	9"	229 mm
5	0.05"	1.3 mm	0.024"	0.61 mm	8"	203 mm

All shims are designed and manufactured specially to suit the rail section for which they are required.

SPECIAL SHIMS Composite Shims (to suit more than one rail section), Double Location Shims (to suit two different bolt centres), Cranked Shims (to clear electric bonding), and others are designed and manufactured by us to suit special requirements.