SAE INTERNATIONAL

SURFACE VEHICLE STANDARD

J1754™/3 SEP2020

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Superseding J1754/3 OCT2015

Hose Assemblies, Hydraulic, J517 100R Series Hose - Part 3: Procurement and Ordering Information

RATIONALE

SAE J1754/3 has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This SAE Standard covers procurement and ordering information for hose assemblies using SAE Standard J517 100R Series hoses and connectors specified in SAE Standard J516 or all parts of ISO 12151 for use in hydraulic systems using petroleum based hydraulic fluids.

NOTE: Working pressure is defined as maximum system pressure.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J343 Test and Test Procedures for SAE 100R Series Hydraulic Hose and Hose Assemblies

SAE J516 Hydraulic Hose Fittings

SAE J517 Hydraulic Hose

SAE J846 Coding Systems for Identification of Fluid Conductors and Connectors

SAE J1754-1 Hose Assemblies, Rubber, Hydraulic, Steel Wire Reinforced - Part 1: Procurement Document

SAE J1754-2 Hose Assemblies, Rubber, Hydraulic, Steel Wire Reinforced - Part 2: Ordering Information

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

For more information on this standard, visit
https://www.sae.org/standards/content/J1754/3_202009

2.1.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B 117 Standard Test Method of Salt Spray (Fog) Testing

2.1.3 ISO Publications

Available at http://webstore.ansi.org/

ISO 4406 Hydraulic fluid power - Fluids - Method of coding level of contamination by solid particles

ISO 12151-1 Connections for hydraulic fluid power and general use - Hose fittings - Part 1: Hose fittings with ISO 8434-3 O-ring face seal ends

ISO 12151-2 Connections for hydraulic fluid power and general use - Hose fittings - Part 2: Hose fittings with ISO 8434-1 24° cone ends

ISO 12151-3 Connections for hydraulic fluid power and general use - Hose fittings - Part 3: Hose fittings with ISO 6162 flange ends

ISO 12151-4 Connections for hydraulic fluid power and general use - Hose fittings - Part 4: Hose fittings with ISO 6149 metric stud ends

ISO 12151-5 Connections for hydraulic fluid power and general use - Hose fittings - Part 5: Hose fittings with ISO 8434-2 37° flare ends

ISO 12151-6 Connections for hydraulic fluid power and general use - Hose fittings - Part 6: Hose fittings with ISO 8434-6 60° cone ends

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J1176 External Leakage Classifications for Hydraulic Systems

SAE J1273 Recommended Practices for Hydraulic Hose Assemblies

SAE J1405 Optional Test Procedures for Hydraulic Hose Assemblies

2.2.2 ISO Publications

Available at http://webstore.ansi.org/

ISO 3448 Industrial liquid lubricants - ISO viscosity classification

ISO 4397 Fluid power systems and components - Connectors and associated components - Nominal outside diameters of tubes and nominal inside diameters of hoses

3. REQUIREMENTS

3.1 Hose Assembly Construction

Hose used in assemblies shall be per SAE J517. Connectors shall be in accordance with either SAE J516 or ISO 12151 and capable of meeting the performance requirements of this standard.

3.2 Dimensions

Hose shall conform to all the dimensions in SAE J517. Hose concentricity shall be in accordance with SAE J1754-1, Table 11. Connector dimensions shall be per SAE J516 or ISO 12151. Hose assemblies shall conform to the applicable part standard or engineering drawing. Double bent tube (double elbow) assemblies are not recommended and are considered non-standard due to the detrimental effects of twist on the hose.

3.3 Hose Classifications

Hose assemblies shall conform to SAE J1754-1, Table 12, Class C.

3.4 Performance

Hose assemblies shall satisfy the performance requirements in SAE J1754-1 paragraph 4.3.

3.5 Application Factors

See application factors in SAE J1754-1 paragraph 3.5.

3.6 First Time Suppliers

When required by the purchaser, first time suppliers of each hose assembly size may need to supply documentation that products meet the requirements of SAE J1754-1 paragraphs 4.3.1 through 4.3.9.

3.7 Age Control

See age control requirements in SAE J1754-1 paragraph 3.7.

3.8 Marking

See marking requirements in SAE J1754-1 paragraph 3.8.

3.9 Workmanship

Workmanship shall be of the quality necessary to produce hose assemblies free from all defects that could affect proper form, fit and function in service.

3.10 Cleanliness

Hose assemblies shall meet the cleanliness requirement of ISO 4406 Code Number 19 / 16 with no particle size exceeding 0.8 mm or the cleanliness requirement specified by the purchaser.

3.11 Finish

The external surfaces and threads of carbon steel parts shall be plated or coated with a suitable material that passes a 96 h salt spray test in accordance with ASTM B 117. Any appearance of red rust during the 96 h salt spray test shall be considered failure, except for the following:

a. All internal fluid passages.

b. Edges such as hex points, serrations and crests of threads where there may be mechanical deformation of the plating or coating typical of mass-produced parts or shipping effects.

c. Areas where there is mechanical deformation of the plating or coating caused by crimping, flaring, bending and other post-plate metal forming operations.

d. Areas where the parts are suspended or affixed in the test chamber where condensate can accumulate.

Parts manufactured to this document shall not be cadmium plated. Hexavalent chromate coatings are not preferred for commercial and industrial usage due to environmental reasons. Internal fluid passages shall be protected from corrosion during storage and shipping. Changes in plating may affect torque and require re-qualification, when applicable.

4. TESTS

Tests are conducted in accordance with SAE J343 unless otherwise specified.

4.1 Responsibility for Tests

See responsibility for tests in SAE J1754-1 paragraph 4.1.

4.2 Classification of Tests

See classification of tests in SAE J1754-1 paragraph 4.2.

4.3 Qualification Tests

See qualification tests in SAE J1754-1 paragraph 4.3.

4.4 Quality Conformance Tests

See quality conformance tests in SAE J1754-1 paragraph 4.4.

5. PRODUCT APPROVAL

See SAE J1754-2 for agreement between purchaser and supplier.

6. PACKAGING

Packaging shall be as specified in the contract or purchase order, or as agreed upon between the purchaser and supplier.

7. ORDERING DATA

The following data shall be required when ordering per this standard:

a. Title and date of this document.

b. Applicable design parts standard and/or engineering drawing.

c. Connector material.

d. Quantity.

e. When qualification testing is required per paragraph 3.6 and 4.3.

f. When performance tests are specified per SAE J1754-1 paragraph 4.4.2.

g. Type of packaging required.

Table 1 - SAE J517 100R series hose codes

SAE J517 100R Hose[1]	R1AT	R1S	R2AT	R2S	R3	R4	R5	R6	R7	R8	R12	R13	R14A	R14B	R15	R16	R16S	R17	R18	R19
SAE J846 Designation	53	95	54	55	44	45	46	47	48	49	77	78	79	80	90	91	99	93	94	A5
SAE J1754-3 Designation	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	W

1. See SAE J517, Appendix B1 or SAE J846.

Table 2 - Hose cover type codes

Standard Synthetic Rubber Cover	Intermediate (Medium Abrasion) Cover	High Abrasion Cover
1	**2**[1]	**3**[1]

1. Hose cover type material per purchasers approved material specification.

Table 3 - Hose and connector size identification codes

SAE HOSE DASH SIZE EXCEPT 100R5 AND 100R14[1]	02	03	04	05	06	08	10	12	—	16	—	20	24	32	40	48
ISO HOSE SIZE[2]	3.2	5	6.3	8	10	12.5	16	19	—	25	—	31.5	38	51	63	78

SAE HOSE DASH SIZE FOR 100R5 AND 100R14[1]	03	04	05	06	07	08	10	12	14	16	18	20	24	32	40	48
ISO HOSE SIZE[2]	3.2	5	6.3	8	10	11	12.5	16	19	22	25	29	35	46	60	76
LETTER DESIGNATION	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**M**	**N**	**V**	**P**	**R**	**T**	**U**	**W**

NOTE: Hose size columns line up with the appropriate standard connector end size in the following Table.

SAE CONNECTOR DASH SIZE[3]	CODE	02	03	04	05	06	08	10	12	14	16	18	20	24	32	40	48
ISO 12151-1 CONNECTOR SIZE[4]	**S**	—	—	6	8	10	12	16	20	—	25	—	30	38	—	—	—
ISO 12151-2 CONNECTOR SIZE-L[5]	**L**	—	6	8	10	12	15	18	22	—	28	—	35	42	—	—	—
ISO 12151-2 CONNECTOR SIZE-S[6]	**S**	—	8	10	12	—	16	20	25	—	30	—	38	—	—	—	—
ISO 12151-3 CONNECTOR SIZE-L[5]	**L**	—	—	—	—	—	13	—	19	—	25	—	32	38	51	—	—
ISO 12151-3 CONNECTOR SIZE-S[6]	**S**	—	—	—	—	—	13	—	19	—	25	—	32	38	51	—	—
ISO 12151-4 CONNECTOR SIZE-L[5]	**L**	—	—	M12	M14	M16	M18	M22	M27	—	M33	—	M42	M48	—	—	—
ISO 12151-4 CONNECTOR SIZE-S[6]	**S**	—	—	M12	M14	M16	M18	M22	M27	—	M33	—	M42	M48	—	—	—
ISO 12151-5 CONNECTOR SIZE[7]	**L**	—	—	6	8	10	12	16	20	—	25	—	30	38	50	—	—
ISO 12151-6 CONNECTOR SIZE[7]	**L**	—	6	8	—	10	12	16	20	—	25	—	30	38	50	—	—
LETTER DESIGNATION		**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**M**	**N**	**V**	**P**	**R**	**T**	**U**	**W**

1. Hose dash size is based on inches, with each dash size equal to 1/16 inch, except SAE 100R5 and 100R14.
2. ISO hose size is based on the equivalent SAE J517 inch hose sizes per ISO 4397, where applicable.
3. Connector dash size is based on inch tubing, with each dash size equal to 1/16 inch.
4. ISO connector size is based on ISO 12151-1 with S (Heavy duty series) only.
5. ISO connector size is based on ISO 12151-2, 3 and 4 with L (Light duty series).
6. ISO connector size is based on ISO 12151-2, 3 and 4 with S (Heavy duty series).
7. ISO connector size is based on ISO 12151-5 and 6 with L (Light duty series) only.

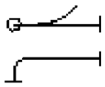
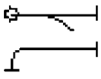
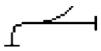
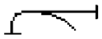
NOTE: In Appendix B drawing, the end sizes will need to be filled in the blank space, due to the different end sizes in each of the ISO 12151 standards for each letter code. Example: If a 12151-1 end connection with a 13/16-16 UN thread is used, the size and code would be 12 / H.

Table 4 - Sleeve codes[1]

Code	Sleeve Type
A	Steel Flat Armor Guard
B	Steel Round Spring Guard
C	Thermoplastic Sleeve
D	Textile Polyamide Sleeve
E	Fire Sleeve
F	Plastic Flat Armor Guard
W	None
X	See Drawing

1. Full length sleeve over entire hose is assumed on hose assembly. If partial length sleeve is required on hose assembly, place an “X” to see drawing.

Table 5 - Hose curvature orientation codes(1)

Top Front					**Not Required**
VIEW	**P**	**R**	**T**	**U**	**W**

1. Hose curvature orientation to be used when required for ease of assembly.

Table 6 - Hose operating temperature range codes

Code	Temperature Range
A	Same as SAE J517 100R series specification
X	See drawing for hose temperature rating

Table 7 - Hose fitting coupling attachment type codes(1)

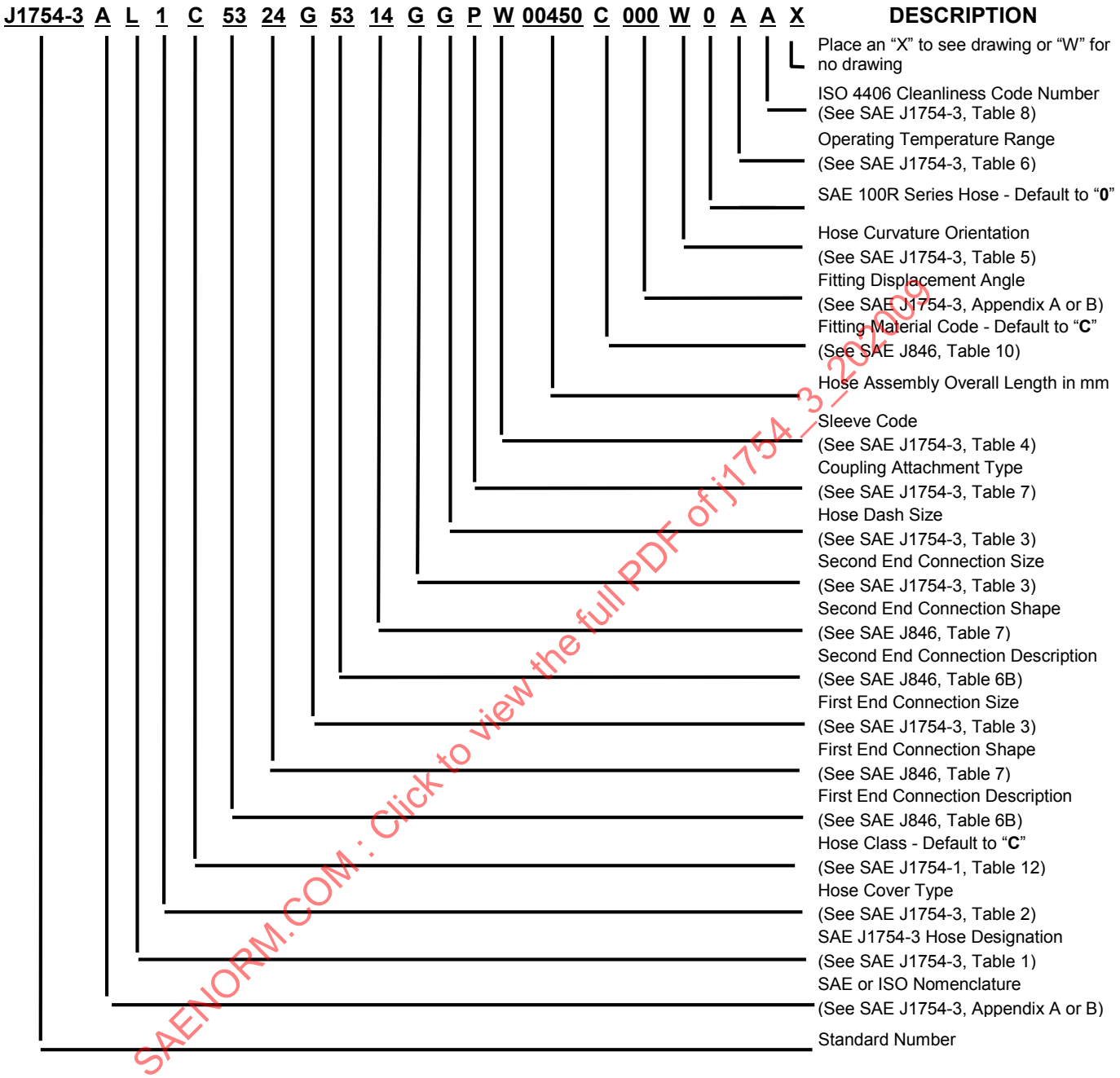
Code	Coupling Attachment Type
C	Worm gear clamp for use with SAE J1231 beaded ends and SAE 100R3 and 100R4 type hoses
F	Field attachable (screw together)
M	Field attachable (screw together), for assembly with a mandrel and SAE 100R5 type hoses
P	Permanently attached
S	Field attachable (segment clamp)
X	See drawing for hose fitting coupling attachment type

1. Letter codes are per J846 identification coding.

Table 8 - ISO 4406 cleanliness requirement codes

Code	Cleanliness Requirement
A	Per SAE J1754-1 Part 1, ISO 4406 cleanliness requirement
B	ISO 4406 code 18/13 with maximum particle size of 0.5 mm in the largest dimension
X	See drawing for cleanliness requirement

7.1 Part Identification Numbers



Example of Hose Assembly Part Number: J1754-3AL1C5324G5314GGPW00450C000W0AAX

NOTE 1: “X” to be used for identifying special conditions that require a drawing.
NOTE 2: “W” to be used for identifying all letters not required in the coding identification.
NOTE 3: “0” to be used for identifying all numbers not required in the coding identification.
NOTE 4: The Hose Class “C” and the SAE 100R Series Hose “0” defaults are used to ensure the SAE J1754-3 part number includes the same number of fields as the SAE J1754-2 part number.

Figure 1 - Example of hose assembly part number